

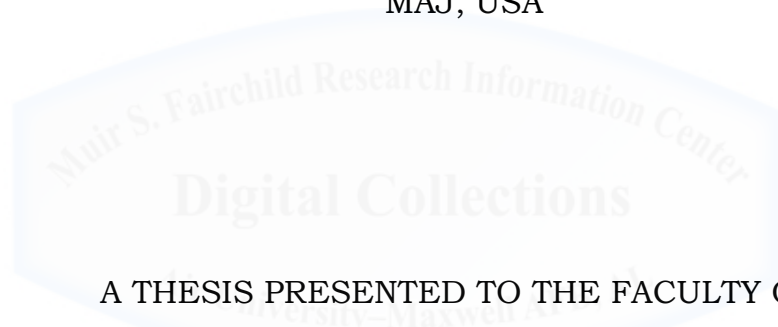
“WAR PLAN JUAN”

The Strategy of Juan Trippe and Pan Am in Latin America and Africa
Before and During World War II

BY

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A THESIS PRESENTED TO THE FACULTY OF
THE SCHOOL OF ADVANCED AIR AND SPACE STUDIES
FOR COMPLETION OF GRADUATION REQUIREMENTS

SCHOOL OF ADVANCED AIR AND SPACE STUDIES

AIR UNIVERSITY

MAXWELL AIR FORCE BASE, ALABAMA

JUNE 2012

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ACKNOWLEDGMENTS

I would like to acknowledge several people without whose support and help I would have been helplessly flailing. Throughout this year I have had many fine teachers.

Thanks to John Hill, Curator-in-charge of aviation at the San Francisco Airport museum. Mr. Hill provided valuable insight into where Juan Trippe was looking to expand his corporate empire. He also provided me with some great leads on sources and contacts

Thanks to Colonel Tim Schultz whose eye for detail and tenacity for precision drove me to new heights just when I thought I was almost out of gas.

Special thanks to my advisor, Dr. Richard Muller. His questioning and prodding opened my eyes to new questions and ways to look at the subject. His patience knows no bounds, and the deafening silence at the right time, in the right way, motivated my labors well into the weary hours of the night. He also was my best cheerleader to press on through the thick of the argument.

Finally, I want to thank my wife and family. Their patience and devotion provided me with the fuel to see this through in the toughest of times.

ABSTRACT

This study is a historical examination of the relationship between the United States War Department and Pan American Airways before and during World War II. The author assesses the importance of strategic thinking for both military and business leaders. This paper specifically examines the strategic vision and efforts of Juan Trippe, president of Pan American Airways. Trippe lays the foundation for his corporate empire by establishing meaningful relationships with key individuals from the crypt of the "Skull and Bones" society to the halls of the War Department. From these relationships Trippe is able to engineer conditions to earn secretive, advantageous government contracts to build dozens of airbases throughout Latin America and Northern Africa. With President Roosevelt's help, Trippe is able to turn the Latin American and African airstrips from defensive contingency bases before the war to offensive lifelines during the war against the Axis. The final section of this paper examines the characterization of Trippe as a "heterogeneous engineer" and strategist who shaped the context of situations to his advantage.



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Introduction

He talked people out of Money. He talked governments out of concessions...He is a very able man; and if we are to have a monopoly, I want to see Juan Terry Trippe at the head of it.

-Senator Carl Hayden of Arizona during Congressional Anti-Trust hearings, May 1941.

“Long distance, please get me Robert E. Gross, President of Lockheed Aircraft Corporation, Burbank, California. Mr. Trippe, President, Pan American Airways, is calling,” requested the operator on the 57th floor of the Chrysler Building late one morning in May 1941. A few minutes later she made the connection: “Mr. Trippe, Mr. Gross is on the line.”

“Hello, Bob, this is Juan Trippe in New York. Say, I just had a call from the State Department and was told that there were some twenty-odd Lockheeds and Douglas planes which they wished to get as quickly as possible to the British in Egypt, and wanted to know whether between us we could assemble twenty captains, co-pilots, the necessary radio operators and navigators, and fly them across the South Atlantic. I told them I thought we could and I’d get in touch with you to see if you had some extra pilots who were familiar with these types of ships.”

“Sure,” Mr. Gross replied, “how many do you need and where should they report?”

“About twenty,” Trippe confirmed, “and they should report to Miami in a couple of days.”

“O.K.,” said Gross, “they will be there.”¹

With this phone call, Atlantic Airways, precursor to Pan American Airways-Africa (PAA-A) and an organization described by U.S. military senior leadership as one whose accomplishments “will go down in military history,” was born.² Juan Trippe, President of Pan American Airways, knew how to get things done. More importantly, he knew how to get other people to do the things he wanted done. Relationships mattered to Trippe, and good personal and business relationships catalyzed the activities Trippe felt were in his corporation’s best interests.

The significance of Pan American, or Pan Am, is too readily overlooked given the current perspective on air transportation. Since 1927, Pan American pioneered the establishment of air transport service for the United States over the international trade routes considered critical to commerce, reliable postal service, and national security. This thesis examines the contributions of Pan American Airways to Hemispheric and national defense from 1939 to 1942. Specifically, this work investigates the relationship between Pan American Airways and the U.S. War Department. Utilizing both the Airport Development Program of Latin America and paramilitary activity in Africa on the Takoradi route as analytical case studies, this paper frames the dynamics of government-business relationships in a command economy. It also highlights the importance of individuals acting as so-called “heterogeneous engineers” during the creation and implementation of business and military strategy. Those that assemble disparate elements to achieve strategic advantage are also known as strategists. Therefore, this work characterizes Trippe as both a “strategist” and a “heterogeneous engineer.”

¹ Corporate minutes: Summaries including affiliates, folder #13, box #24, Pan American Airways (PAA) archives.

² Letter from the Commanding General, Air Transport Command, to Pan American Airways, History: Military Air Transport Service. Page 3, folder #8, box #15 PAA Archives.

Juan Trippe's early influences and key relationships

Born in Sea Bright, New Jersey in 1899, Juan Terry Trippe enjoyed a privileged childhood. His father was a successful Wall Street banker and was the great-great-grandson of Lieutenant John Trippe, Captain of the USS Vixen and veteran of the Barbary war.³ Trippe was fascinated with flying from a young age. In 1917 he took private pilot lessons at the Curtiss flying school in Miami. He graduated from the prestigious Hill School that same year and went on to Yale University as the United States entered World War I. Influenced by his Naval heritage, Juan temporarily left Yale to join the Navy and contribute to the war effort. Unable to secure a wartime flight assignment, Juan finished his initial service obligation and returned to Yale, joining the class of 1922.⁴

He was so captivated by flying that he formed Yale's first flying club. In his final year at Yale, Juan joined the secretive Skull and Bones society, an unofficially sanctioned university social club designed to groom and connect future government and business leaders.⁵ The Society picked or "tapped" 15 rising seniors every year to meet twice a week in the society's secret hideout nicknamed "the tomb." Selection for membership was based on family connections, genealogy, talent, and sometimes just pure luck. Skull and Bones members, or "bonesmen," initiated members by coercing them to share personal and potentially humiliating information. They therefore became dependent upon those that held their most valuable secrets. Veteran members would also volunteer sensitive information, forming a cooperative partnership based

³ "Juan Trippe, 81, dies; U.S. aviation pioneer," April 4th, 1981, *The New York Times*.

⁴ Bender, 31-32.

⁵ Robert Daley, *An American Saga: Juan Trippe and His Pan Am Empire*, (New York: Random House, 1980), 2.

on mutual trust and vulnerability.⁶ There was a component of mutual vulnerability and codependency in Skull and Bones, providing a level of protection that went beyond close family ties. Betraying Skull and Bones meant betraying your newest and potentially closest friends.

In this secretive Yale society, Trippe would form his most valuable and lasting relationships. Fellow “bonesman” W. Averell Harriman would help finance Trippe’s initial acquisition of Pan American Airways in 1927. Later, as Roosevelt’s special envoy to Europe, Harriman would advise Churchill on how he might use commercial airlines in general, and Pan American in particular, to feed men and equipment into the North African combat zone. Harriman was so influential with Churchill that he convinced the Prime Minister to bring Trippe personally into his inner sanctum to discuss how Pan Am might turn the tide in Great Britain’s favor against Rommel’s Afrika Korps.

Henry Stimson, Secretary of War under President Franklin Delano Roosevelt until 1945, also called Trippe a “bonesman” brother. Though much older than Trippe, Stimson acted as a mentor and confidant, providing top cover for the War Department and Pan American Airways to cement their relationship in spite of opposition from politicians fearful of a Pan American monopoly.⁷ From a day-to-day perspective, Trippe’s contacts with the Administration went through Stimson. The two “bonesmen” enjoyed a strong relationship forged from shared experiences and trust, just as the “tomb” was designed to produce. Both were veterans of Wall Street, where Stimson worked as a corporate lawyer and Trippe as an investment banker. Now, both were in a position to help chart the nation’s course through the Second World War and the peace that would follow.

⁶ Wikipedia, “Skull and Bones.” http://en.wikipedia.org/wiki/Skull_and_Bones.

⁷ Stimson graduated from Yale more than 30 years before Trippe. Though the generation gap could have paralyzed their working relationship, Stimson and Trippe worked well as a team.

It is unclear when Secretary Stimson and Juan Trippe first met, but both men depended on each other to further their individual interests in the years before World War II. Stimson needed Trippe to discreetly provide air transport to support a president seeking re-election in a sensitive political environment, and Trippe was going to squeeze every last profitable government contract for planes, people, and services from the elder statesman. Stimson noted in his diary, "Juan Trippe came to see me, primarily ostensibly- rather ostensibly- to urge me to go to the Plainfield Yale meeting where they want to give me the famous Yale Bowl for the outstanding Service-of-the-year man during the year. But really to wrangle some more commercial planes out of me."⁸ The Secretary summoned Trippe into his inner office in July 1940. Now, Stimson was going to tell the younger Trippe what he could do for his country, and for Yale.

As Herbert Hoover's secretary of state, Stimson was adept at standing firm against nations that tried to tip the international balance of power. Authoring the "Stimson Doctrine" in 1932, he spearheaded American opposition to Japanese expansion in Asia. By 1938, he was starting to see signs of German expansion into Africa and the Americas. He, along with the War Department general staff planners, feared that French Dakar, West Africa, might be used as a staging base to invade South and Central America, ultimately threatening the Panama Canal and the United States' southern flank. Though not yet openly belligerent, Germany had Junkers bombers capable of spanning the South Atlantic from West Africa to Natal, Brazil, and a demonstrated desire to expand its influence.⁹ With an air infrastructure already operating in South America through the (mostly German-subsidized) Condor syndicate airlines, a French defeat in Europe and loss of its bases in Dakar would certainly enable Germany to threaten the security

⁸ Bender, 334.

⁹ Bender, 331.

of the Hemisphere as well as critical British supply lines stretching across central Africa.

Stimson's concern about German intervention in South America was not the product of intuition alone, nor was it a simple case of projecting Japanese expansionist tendencies onto the Germans. As early as December 1927, in a memo from the US military attaché in Brazil to the War Department, a US intelligence agent outlined the increasing activities of German agents attempting to link the old world with the new. In the report, the agent concluded that no scheme for linking Europe to South America seemed practicable without Brazilian cooperation, and further noted that U.S. engagement with Brazil was lacking.¹⁰ The Washington-Rio relationship would prove to be a vital strategic bond during World War II, one which Pan American would be instrumental in cementing though the next two decades.

During their meeting, Stimson asked Trippe to improve his network of airfields, communications facilities, and seaplane bases in Central and South America to support Roosevelt's hemispheric defensive strategy under a veil of commercial activity.¹¹ This would allow the administration to retain deniability while positioning to counter Axis infiltration. It would also allow Juan Trippe to expand his aerial empire at government expense. The relationship between Stimson and Trippe would serve both men's interests throughout the war. Though his "bonesman" network enabled much of his success, Trippe still had to form and leverage relationships with those who didn't share his Yale background.

Of all the relationships Trippe forged with the political and military elite of the day, none was more important than that with President Franklin D. Roosevelt. As Undersecretary of the Navy in 1917, Roosevelt

¹⁰ Memo #755, Military attaché to War Department, correspondence, folder #6, box #15, Richard K. Smith papers, Auburn University Special Collections.

¹¹ Bender, 331.

had helped Trippe, then a Yale freshman, to get into the Naval Air Service despite potentially disqualifying eyesight deficiencies.¹² Trippe would remind the President of this favor in a jovial attempt to ingratiate himself with the executive branch and get closer to the sources of power. To ensure the company was at the forefront of the President's mind, Trippe hired his former law partner, Basil O'Conner, as Pan Am counsel to supply Roosevelt with a steady stream of favorable endorsements of Pan American and its accomplishments. Trippe even authorized a Pan American Airways commodore to make a sea landing next to Roosevelt, fishing off the northern coast of Cuba, so the President's son could say hello to his father.¹³ Trippe was sensitive to sustaining the favorable relationships he enjoyed with the White House, especially those built and nurtured with previous Republican administrations. He had invested too much time and energy beating the pavement in Washington to have it all come crashing down because of political or ideological differences.

But the President had not gone through the tomb of Skull and Bones. A Harvard man, Roosevelt had been skeptical of Trippe's ambitions since watching him corner airmail contracts during the twenties and thirties.¹⁴ Trusting Juan Trippe was not something President Roosevelt could bring himself to do very easily. His suspicion of Trippe's motives was no secret. After deliberating with the President about Pan American's designs on exclusive European air routes, Secretary of the Interior Harold Ickes concluded:

Trippe is an unscrupulous person who cajoles and buys his way. He has made quite an unsavory record in South American countries. He has what amounts to a worldwide monopoly, and the President is against this. The President said he had talked personally with Trippe. He

¹² Bender, 43.

¹³ Bender, 216.

¹⁴ Bender, 14.

described him as a man of all-yielding suavity, who could be depended upon to pursue his own ruthless ways.¹⁵

Roosevelt described Trippe as “the most fascinating Yale gangster” he’d ever met.¹⁶ But like Stimson, Roosevelt shared Trippe’s philosophy of seizing bases, routes, contracts, and the initiative before his competitors. Both believed that the US was morally and strategically obligated to assist Great Britain in its war of national survival at the beginning of the 1940s, ideally pinning down Germany in its own hemisphere. If Great Britain fell, Roosevelt was convinced the United States and Western Hemisphere would be next.¹⁷ He was determined to help Britain only if it meant buying time to put the United States into a defensively sound and offensively flexible military position. To do this, Roosevelt needed to strategize in total secrecy.

Communicating from a secret radio room in the White House called the “map room,” Roosevelt would assure Churchill that a defeated Germany and a free Western Europe was in the interest of both nations.¹⁸ Yet much to the frustration of Trippe and the American people, Roosevelt seemed to temporize, waiting for some exogenous factor to unite the American people against Hitler’s Germany. Roosevelt to some seemed incapable of, or unwilling to, provide leadership. His distance made him seem out of touch with reality and impervious to the gathering storm on the horizon.¹⁹

The President, however, was charting a perilous course, keeping a watchful eye on the shoals of public opinion and the desire to make a stronger commitment to the Allies. Like Trippe, Roosevelt was a Navy

¹⁵ Harold L. Ickes, *The Secret Diary of Harold L. Ickes*, (New York: Simon and Schuster, 1954), 115.

¹⁶ Bender, 13.

¹⁷ Henry L. Stimson and McGeorge Bundy, *On Active Service in Peace and War* (New York, 1947), 368.

¹⁸ Richard L. Walker and George Curry, *The American Secretaries of State and Their Diplomacy: E.R. Stettinius, jr., James F. Byrnes*, eds. Samuel F. Bemis and Robert H. Ferrell (15 vols., 1927-1929, 1963-1967), 14: 13-14. University of Alabama Library.

¹⁹ Robert Divine, *Roosevelt and World War II* (Baltimore, 1970), 36.

man and knew the importance of geostrategic position. The President envisioned gaining a positional advantage over the Axis by building and controlling a system of air routes throughout Central and South America and Western and Central Africa. As journalist Robert E. Sherwood explained, "This was the network of air lanes that Roosevelt was determined to control before Hitler could, for they were all two-way streets."²⁰ Roosevelt had to ensure he could sustain a robust hemispheric defense while building a flexible, strategically offensive position, all while maintaining American neutrality and minding domestic isolationist sensibilities. To do this, he would need Trippe's help. The President understood the value and military significance of Trippe's South American airfields as a jumping-off point for gaining a foothold on the African continent. Trippe's northernmost airfields, however, could only accommodate medium and long-range bombers, too far to be used effectively by shorter range interceptors and fighters. Intermediate bases in Central America and the Caribbean would have to be constructed to make Trippe's South American air network usable to the vast armada of Army Air Corps airplanes that would eventually roll off U.S. assembly lines. Though he would rather not associate with Trippe any more than necessary, and wary of creating a monster in Pan American with the backing and power of the United States government, President Roosevelt carefully "reforged" the chosen instrument to operate on behalf of national security. Trippe would need to establish a strong relationship with the War Department to effectively integrate his instrument with the full panoply of national power.

As a Navy veteran and aviator, Trippe realized the importance of forging an effective relationship with the military, especially the Army Air Forces. The Army would pay good money to Pan American to construct bases and provide air transport services in both South America and

²⁰ Robert E. Sherwood, *Roosevelt and Hopkins, an Intimate History* (New York, 1948), 262.

Africa. However, the Chief of Staff of the Army Air Forces, General Hap Arnold, had a sort of “love-hate” relationship with the Pan American Airways president. Arnold viewed the commercial airlines and Pan Am as a natural reserve for the AAF and valued their contributions. But Arnold always seemed a bit wary of Pan Am’s increasing power, unsure if a commercial aviation monopoly was in the best interest of the country.²¹ Trippe and Arnold’s relationship was one best characterized by mutual respect and professional competition, but tempered with a touch of suspicion.

In 1927, then-Majors Henry “Hap” Arnold and Carl Spaatz conceived an idea to counter what they perceived as foreign encroachment on the Western Hemisphere by international airlines. Italian, German, and French carriers were all laying claim to basing and routes in South America, creating security concerns around border sovereignty and strategic waterways, namely the Panama Canal. Arnold believed if he could create a cross-continental, or “Pan American” airline to counter this foreign commercial land grab, the United States could prevent future enemies from achieving positional advantage in the Hemisphere through proxy commercial agents. He and Spaatz even considered resigning their commissions to develop their venture full-time. Both men ultimately decided the country needed them in the service and not in business.²² Besides, Juan Trippe had presented the nascent leadership of the fledgling Pan American Airways with a fait accompli. The start up company had purchased the requisite equipment for overwater flight, and even won the bid for government airmail contracts to Cuba, but Trippe had secured exclusive landing rights from

²¹ Author’s deduction.

²² Bender, 84-86. Daley also covers the Spaatz and Arnold PAA venture in detail, 5. The future generals together with a third officer, Major Jack Jouett, drew up a prospectus for the business and even dispatched officers to secure investors for the idea.

the Cuban President himself.²³ With America's first international air carrier "all dressed up and nowhere to go," New York City Investment banker and venture capitalist Richard Hoyt sold Arnold's and Spaatz's concept to Juan Trippe. Out-maneuvered by the seemingly aloof Trippe, Arnold made a mental note to keep the civilian at arm's length in the future.

Despite the potential for bad blood from the Cuban landing rights incident, Trippe and Arnold managed to hold each other in relatively high esteem. In February 1939, Trippe invited Arnold and his wife to be among the first passengers aboard the new Sikorsky-40 seventy-five passenger Clipper class flying boats. In his invitation, Trippe invited Arnold to the christening and offered him the chance to be among the select few "distinguished guests" to cruise over Washington and vicinity on the "Yankee Clipper's" maiden voyage.²⁴ General Arnold was pleased to receive the invitation and gladly accepted "with kindest regards."²⁵ Similar well wishes were exchanged in October of 1942. After receiving an invitation to join Trippe at his Alma Mater for the Yale-Army football game, Arnold "regretfully declined" citing an official function on the same night, extending "kindest regards to Betty and you from both of us."²⁶ Again, in May 1942, Trippe and Arnold exchanged personal correspondence in which Arnold praised the professionalism and competency of Samuel Pryer, Vice President of Pan American, and thanked Trippe for providing a complimentary copy of the annual shareholders and employee report.²⁷ In his return letter, Trippe hoped

²³ Bender, 71. Also covered in greater detail in Wesley Phillips Newton, *The Perilous Sky* (Coral Gables Florida: University of Miami Press, 1978), 165-166.

²⁴ Letter from Juan trippe to General Arnold, dated 24 February 1939. Folder #16, box #93, PAA Archives.

²⁵ Letter from General Arnold to Juan Trippe, dated 28 February 1939. Folder #18, box #93, PAA Archives.

²⁶ Letter from General Arnold to Juan Trippe, dated 4 October 1941. Folder #17, box #93, PAA Archives.

²⁷ Letter from General Arnold to Juan Trippe, dated 16 May 1942. Folder #17, box #93, PAA Archives.

Pan American would “do these jobs creditably and to your full satisfaction” and wished to “take this opportunity to thank you for the personal assistance you have so freely given from time to time in making it possible for us to carry out these assignments notwithstanding the heavy responsibility you are carrying these days.” Clearly Trippe cared deeply about the job Arnold was doing for the country and wished him well. Trippe closed his personal letter by imploring Arnold to “keep up the good work you are doing but also do watch your health. This is now a responsibility you have to the whole public.”²⁸ These letters demonstrated not only mutual respect and admiration, but a grasp of the importance of each other’s role in national defense in the context of current events. They also indicate a mutual personal affinity, both eager to share pleasure flights and football games in each other’s company. Just sixty days from Trippe’s last letter to Arnold, however, the relationship took a sharp tack.

In June 1942, General Arnold invited Trippe to his Washington, D.C. office to make him a generous offer. The air transport systems in both theaters of war required major structural and leadership changes. Arnold reasoned Trippe would make a fine Commander in Chief of air transportation, and cleared the way for an unusual military personnel announcement. He was going to make Trippe an instant three star general in the Army Air Forces in charge of all air transport in the Pacific theater. When he arrived at Arnold’s office to receive the news, Trippe was somewhat taken aback. Trippe took a moment to gather his thoughts as Arnold triumphantly sat back in his chair waiting for what he thought would be accolades and gratitude for this unique honor. Instead, Trippe started to instruct Arnold on the finer points of air transportation and the inefficiencies he perceived in the current structure. Using disparate and incompatible domestic carriers

²⁸ Letter from Juan Trippe to General Arnold, dated 2 May 1942. Folder #16, box #93, PAA Archives.

haphazardly integrated with the Army Air Transport Command and the Naval Air Transport Service to carry out important military missions that required unity of command and effort was a recipe for disaster, in Trippe's view. "A single large system permits efficiency and economy in the training of personnel and the use of equipment that are impossible for smaller separate units," he lectured Arnold. "All air transport beyond the borders of the U.S. should be centralized in one organization."²⁹ What the military needed was one commercial airline providing all services to streamline quality control, economize the logistical effort, and reduce unnecessary overhead--the perfect job for Pan American. As Trippe continued on about how much the military needed Pan American to serve as a single source vendor, General Arnold began to realize he was being let down gently.

Juan Trippe was not accustomed to taking orders from anyone, and certainly not the young major who had handed him Pan American Airways on a silver platter a decade and a half earlier. Besides, why give up his status and power as Chief Executive of the U.S. flagship carrier to subordinate himself to a military man? Similarly, General Arnold was not used to hearing anyone tell him "no," especially a man who left the service as a junior officer and never saw combat as a naval aviator. To make matters worse, Trippe had benefited from Arnold's generosity and advocacy during the formative prewar years of the Roosevelt administration, when Airport Development Program contracts were let in Pan American's favor.³⁰ The more Trippe pontificated about the system and current state of affairs, the angrier Arnold became. Arnold let Trippe know, in no uncertain terms, that he should take the commission and be thankful it was even offered.

Just as Trippe was declining a second time, Major General Dwight D. Eisenhower wandered into Arnold's office to wish the senior

²⁹ Bender, 360.

³⁰ Bender, 360.

officer farewell on his way to Europe. After pleasant goodbyes were exchanged, Eisenhower added that he had overheard Trippe speaking to military members in the hallway. He was impressed with Trippe's creative and energetic approach for improving air transport operations across the board and hoped his ideas would soon be implemented. This sent Arnold into another round of flustered tirades directed at both Eisenhower and Trippe, causing the excoriated men to excuse themselves from the room. General Arnold's outbursts reverberated all the way to the White House. President Roosevelt pulled Eisenhower aside during a regularly scheduled strategy meeting later that week to caution him against upsetting relationships in the War Department. Roosevelt needed his military free from politics and petty jealousies; after all, there was a war on. The President suggested he apologize to Arnold to smooth things over. Eisenhower informed the president he was inclined to do no such thing, but being a military man would follow the President's directives if he was so ordered. President Roosevelt knew after his meeting with Eisenhower that he had picked the right man to command the European Theater.³¹

Despite their occasionally tumultuous nature, the relationships Juan Trippe nurtured with the executive branch, War Department, and Army Air Forces enabled Pan American Airways to shape the conversation of global air transport during the formative defense policy years before World War II. As a heterogeneous engineer, or manager of context, Trippe brought together disparate organizations, personalities and otherwise dissociative elements to set the necessary conditions for strategic advantage in Latin America and Northern Africa. Before Roosevelt and Trippe could counter the Third Reich in North Africa, however, the seeds of victory would need to be sown in the Western Hemisphere.

³¹ Daley, 44.

Chapter 1

The Pan American Airport Development Program of Central and South America

Victory is the beautiful, bright-colored flower. Transport is the stem, without which it could never have blossomed. Yet even the military student, in his zeal to master the fascinating combination of the ancient conflict, often forgets the far more intricate complications of supply.

-Winston Churchill

The summer of 1940 was a time of revision and modification of the existing military plans of many countries, and the United States was no exception. The apparent stalemate in Europe, the “Phony War,” had come to an abrupt end with the ruthless sweep of German armies over the Low Countries and France in May of that year. Then, the bombing of Great Britain had begun, and the population in the United States was beginning to wonder if they were next after the small island nation succumbed to the waves of German bombers. Many Americans were beginning to realize that the Atlantic Ocean was no longer the barrier it had been for three centuries.

By the mid-1930s, progress in aviation had made possible transoceanic flights across the 1,800 miles between Africa and Brazil. The vulnerability of the Western Hemisphere to Axis attack was thoroughly recognized by American military authorities and by the administration. In March 1939, President Roosevelt attended fleet maneuvers in the Caribbean to evaluate the defenses of the Panama Canal. Both the President and the admirals were concerned about the state of American defenses there and vulnerabilities to the tropical midsection of the Americas. The Navy Department reported: “This

problem brings home the absolute necessity for a base of operations in or near the eastern extremity of South America in case the South Atlantic is to be controlled by any force.”³²

On 16 May 1940, only a few days after the Nazis invaded the Low Countries, the President asked Congress for \$896 million for military expenditures. Stressing the vulnerabilities of the Western Hemisphere to this form of attack, the President stated:

“From the fiords of Greenland it is four hours by air to Newfoundland; five hours to Nova Scotia, New Brunswick and to the Province of Quebec; only six hours to New England. The Azores are only 2,000 miles from parts of our eastern seaboard and if Bermuda fell into hostile hands it would be a matter of less than three hours for modern bombers to reach our shores. And Para, Brazil, near the mouth of the Amazon River, is but four hours to Caracas, Venezuela; and Venezuela is but two and one-half flying hours to Cuba and the Canal Zone: and Cuba and the Canal zone are two and one-quarter hours to Tampico, Mexico; and Tampico is two and one-quarter hours to St. Louis, Kansas City and Omaha.”³³

US military leaders had recognized the particular vulnerability of the shoulder of Brazil since the beginning of the war in Europe. Protection of the Brazilian bulge from Axis lodgment and aggression therefore became a fundamental component of American plans for Hemisphere defense.³⁴

The potential threat to the United States through South America was by no means a matter of concern only to the military. During the summer of 1940, information relayed from various Latin American

³² William L. Langer and S. Everett Gleason, *The Challenge to Isolation 1937-1940* (New York, 1952), 136.

³³ Samiel I. Rosenman, comp., *The Public Papers and Addresses of Franklin D. Roosevelt*, Vol IX, 199.

³⁴ Stetson Conn and Byron Fairchild, *U.S. Army in World War II, The Western Hemisphere, The Framework of Hemisphere Defense* (2 vols., Washington, D.C., 1960), I, 265. Brazilian “bulge” or “shoulder” refers to the physical eastern protrusion of the country into the South Atlantic.

countries to Secretary of State Cordell Hull also caused him considerable alarm:

“In general the Nazis in Latin America, according to the cables I received from our diplomatic missions, were making no secret of their plans and were boasting openly that Germany could easily conquer South America. Their plans ran as follows:

1. Use the British, French, Scandinavian and other merchant fleets to carry on commerce with Latin America at rates that would put American lines out of business.
2. Blanket Latin America with German aviation lines carrying freight and passengers at rates with which American lines could not compete...”³⁵

Hull was personally convinced that Hitler was planning to turn Latin American governments into German dependencies. The United States, through the use of Pan American Airways, would attempt to fortify the Western Hemisphere, block German expansion into South and Central America, and build a chain of Latin American air bases that would form the building blocks for an offensive and defensive strategy during World War II.

The Threat: German and U.S. Airlines in Latin America

Despite the restrictive nature of the Treaty of Versailles, namely the prohibition on German aircraft manufacturing, aviation thrived in Germany during the 1920s. Various evasive measures were employed to circumvent these restrictions. For instance, commercial aircraft were designed as “dual use” assets, or convertible into military ones; training programs ostensibly for civilian pilots were conducted along military lines; and civilian pilots were trained to fly bombers. In 1925, all commercial aviation was centralized under the state-owned airline

³⁵ Cordell Hull, *Memoirs* (2 vols., New York, 1948), I, 814.

Deutsche-Lufthansa. The civilian front was dropped completely in 1935, when Hermann Goering was placed in control of all aviation, members of “flying clubs” put into uniform, and flight training expanded.³⁶

Germany circumvented another Versailles stipulation forbidding German development of international airlines. It got around this injunction by forming small “local” airlines in various countries. It was logical in the 1920s for former German Air Service men to assume controlling positions in these companies to establish their own aviation operations in foreign territories. South America was a popular place for these former German World War I pilots to make their fortunes.³⁷ The mountain ranges and jungle-like forests of South America, which caused surface transportation to be exceptionally slow and difficult, made that continent a fertile field for the development of air travel.

Brazil soon became the base of German airline operation in South America, although as early as 1920 the Sociedad Colombo-Alemana de Transportes Aeros (SCADTA) had already been established in Colombia. Sindierto-Condor, the major German airline in South America, began operations in 1927 between important points in Brazil. This line was Brazilian-operated but German-owned. In Bolivia, Lloyd-Aereo Boliviano (LAB) was organized in 1925. This airline proved to be such a boon to that mountainous country that Bolivian government and German residents of La Paz assisted in subsidizing the line, which was not very profitable. Most of these lines started receiving financial help from Germany around 1925, but the Deutsche-Lufthansa relationship was not usually overt or acknowledged.³⁸

During the 1930's, German airlines expanded considerably. A popular airline was Sociedad Ecuatoriana de Transportes Aereo (SEDTA), which developed a substantial network of local routes in

³⁶ Wesley L. Craven and James L. Cate, *The Army Air Forces in World War II, Plans and Early Operations, January 1939 to August 1942* (7 vols., Chicago, 1948-1958), I, 85.

³⁷ Craven and Cate, 85.

³⁸ W.A.M. Burden, *The Struggle for Airways in Latin America* (New York, 1943), 11-20.

Ecuador. This carrier made a practice of flying Ecuadorian government officials at reduced rates, sometimes free of charge. The company was incorporated by Ecuador, but owned by Deutsche-Lufthansa.³⁹ In 1938, Deutsche-Lufthansa Sucursal en Peru began service between La Paz and Lima, with plans to extend operations from Rio de Janeiro to the Peruvian capital, bringing the German airline network to within 600 miles of the Panama Canal.⁴⁰

German airline activities in South America continued to expand, even during the early years of World War II. Deutsche-Lufthansa, for example, provided two flights per week from Europe, and Condor received two 26-passenger Focke-Wulf 200 airliners, the first 4-engine landplanes in South America, for service between Rio and Buenos Aires.⁴¹ A noteworthy aspect of this development was Condor's expansion of service in the eastern shoulder of Brazil. By June, 1941, its route mileage in that vital area was 3,100 miles.⁴²

Commenting on this development, historian and author W.A.M. Burden said:

A most important feature of this strategic expansion was the multiplication of the Company's routes in the shoulder of Brazil, most of the new lines tapping small towns with very limited traffic potentialities. The strategic value of this area to the defense of the hemisphere, or to an invading force, is well understood today. Condor also opened a route from Corumba to Porto Velho in the depths of the Brazilian interior. It has been suggested that the company was eager to obtain this route as an excuse to operate unobserved in a locality within striking distance of the Panama Canal. At the time when all these routes of dubious commercial value were being opened up, Condor made no attempt to expand its operations in heavily populated areas, such as the states of Sao Paulo and Minas Gerais.⁴³

³⁹ Burden, 42.

⁴⁰ Burden, 43.

⁴¹ Matthew Josephson, *Empire of the Air, Juan Trippe and the Struggle for World Airways* (New York, 1943), 150.

⁴² Josephson, 150.

⁴³ Burden, 42-43.

Condor also acted as a center for loans of equipment and for extension of technical assistance to other German lines. Well prepared in advance, Condor usually made funds and spare parts available to the other German airlines during the early years of the war, not a sound business decision for a profit-motivated company.⁴⁴

At the time, these German airlines, in themselves, posed little military menace to the United States. Most of them operated with obsolete trimotor planes capable of a cruising speed of only about 140 miles per hour. An attempt to install bomb racks and other necessary military apparatus would have been difficult to hide. The Ju 52, for instance, had been used as a converted bomber in the Spanish Civil War and the Polish campaign, but was obsolete by 1939.⁴⁵ Also, it is unlikely that the six fairly modern planes available to the German lines, unescorted by fighters, could have made a successful bombing run on the Panama Canal.

Conversely, it is obvious that the ground facilities, the radio and photographic equipment, and the personnel of those lines would have been of utmost value to an invading army. Additionally, the German air operations offered a means whereby Axis agents could enter South America, lightweight strategic raw materials could be smuggled out, and, most importantly, observation of American and British merchant shipping and land or maritime military movements could occur undetected.⁴⁶ Regardless, the willingness of the German airlines to offer free passage to government officials, their employment of locals, and the

⁴⁴ PAA Corporate assessment of Condor Limited syndicate, 1942. Folder#29, box 524, PAA Archives.

⁴⁵ Discussion with Dr. Richard Muller, advisor, and author of *The Luftwaffe's Way of War 1911-1945*.

⁴⁶ Bender, 339. Bender describes German and Italian airlines routinely importing Axis agents while exporting diamonds, quartz, and tungsten. F. A. Fischer Von Fortuzyn in *Luftmacht* describes the German use of airlines as a way to demonstrate the struggle for "lebensraum" to the German people. Other than these insights, these conclusions are based on author's own deduction.

necessary and generally satisfactory service they provided, all contributed to the popularity of the German airlines in South America, as well as to a growing sense that the Germans just might be up to something in that part of the world.

To counteract the aggressive commercial, cultural, and military activities of the Nazis in South America, the State and War Departments had been trying since 1938 to find methods of improving the military relationship between the United States and Latin America. The Army recommended a broad range of activities to effect this improvement, with a program foreshadowing the subsequent Airport Development Project. In their "Framework for Hemispheric Defense," historians Stetson Conn and Byron Fairchild outline how the "Army advocated the establishment of additional military missions and advanced two proposals that were to be of outstanding importance in the years to come: the backing of the American-owned commercial aviation interests in Latin America, and the active promotion of American munitions sales."⁴⁷

Despite many conferences on the subject of Latin America and the formation in April 1938 of a Liaison Committee, consisting of the Under Secretary of State, the Chief of Staff, and the Chief of Naval Operations, little was done. One reason for the lack of progress was the State Department's resistance to the idea of backing "American commercial aviation interests in Latin America" for military purposes. This opposition continued until May 1940.⁴⁸

The Pan American Airways system at this time was the major, indeed almost the only, competitor to the German airlines in South America. The company commenced operations in South America in 1927; by 1940 slightly more than half of Pan American's route mileage was accounted for by Latin American operations. Although after 1933

⁴⁷ Stetson Conn and Byron Fairchild, U.S. Army in World War II, *The Western Hemisphere: The Framework of Hemisphere Defense*, 174.

⁴⁸ Conn and Fairchild, 174-175.

Pan American concentrated on developing its world-wide transoceanic operations, during the 1930s the company gradually absorbed or invested in a number of smaller companies in Latin America, among them New York, Rio and Buenos Aires (NYRBA), which became Panair do Brasil; the Compania Mexicana de Aviacion; and the Compania Nacional Cubana de Aviacion. Pan American had also purchased 84% of the stock in Colombia's SCADTA and founded the Uraba Medellin y Central Airways (UMCA), also in Colombia. It acquired two other smaller lines in Peru and consolidated them into Panagra, a combination of Pan American and Grace airlines, handling the Western side of South America.⁴⁹

By the spring of 1940, the Pan American Airways system operated from over 250 airfields in Latin America and the Caribbean. All of the American Republics were now linked by the air routes of one company.⁵⁰ The airline's operations in the eastern part of South America were conducted at this time almost entirely with flying boats. Landplanes were in use in Central America. Along the west coast of South America, Pan American-Grace, although employing flying boats for the most part, had a few landplanes in use. No night flying was done, and airports were not equipped for night flying. The flight from New York City to Buenos Aires, consisting of a series of daytime hops, required five days of travel in 1939. Night flying was considered dangerous partly because of a lack of sufficient navigational information and partly because of the heavy fogs that prevailed along the east coast of South America. Furthermore, instrument flying was only in its initial stages and was considered too dangerous for routine commercial flights before 1940.⁵¹

⁴⁹ Burden, 27-28.

⁵⁰ "Pan American Airways System Extends Services," Bulletin of the Pan American union, LXXII (July, 1938), 431. Folder #6, box #405, PAA Archives.

⁵¹ Corporate history of Pan American in Latin America, Latin American Division. Folders #1,10, and 11, box #201, PAA Archives.

Although the United States looked with disapproval upon the expanding German air operations in South America, little could be done until the events in Europe in May-June 1940. Because of the importance of air travel facilities to Latin America, it was virtually impossible to eliminate Axis airlines completely until the end of 1942, when substitute services, either through Pan American or through local airlines, were made available.⁵²

Most Latin American countries took the initiative to purge axis controlled airlines from within their borders. Peru, suspecting German planes of engaging in illegal military activity, took possession of Deutsche-Lufthansa's airfields in April, 1941. Pan American took over the routes of this German line and provided all necessary services to Peru by the end of the year.⁵³ In May, 1940, German-controlled SEDTA made the unwise gesture of offering to extend its routes to the Ecuadorian-owned Galapagos Islands that commanded the Pacific entrance to the Panama Canal. Hastily, PANAGRA, Juan Trippe's composite of Pan Am and Grace Airways assets, applied for permission to operate parallel air routes to those of SEDTA. Soon a full-fledged price war was in progress, with SEDTA desperately clinging to its routes to the extent of offering to carry airmail within the borders of Ecuador free of charge.⁵⁴ SEDTA's stubborn resistance came to an end only in September, 1941, when the Ecuadorian government requisitioned the company's only two Ju-52s.⁵⁵

Bolivia, having in the meantime determined that Lloyd Aereo Boliviano was not providing satisfactory service, nationalized the company in May 1941, turning part of its air route over to PANAGRA.

⁵² Conn and Fairchild, 241-242.

⁵³ Burden, 74.

⁵⁴ Time, XXXVII (Jan. 27, 1941), 59.

⁵⁵ Burden, 73-74.

The Bolivian government operated the remainder itself. All German employees were discharged.⁵⁶

Portions of the Condor syndicate and the Italian line LATI were relatively easy put out of business. Dependent upon American or British sources for gasoline, they were closed down in December 1941 by the simple expedient of shutting off their fuel supplies. Here again, either the Pan American organization or a national line replaced the operations of the Axis-controlled ones.⁵⁷

Thus, confronted in the summer of 1940 with the downward course of events in Europe, with Axis penetration of Latin America, and with the weakness of its hemisphere defenses, the United States faced the urgent necessity of finding some means of fortifying the strategic Caribbean and South American regions. It was equally imperative that this be done in a manner acceptable to the suspicious Latin American Republics. Though individual Central and South American countries took the lead in ferreting out much of the Axis presence themselves, the majority of German Condor and SCADTA airlines proved unusually resilient, requiring assistance from both Pan American and the United States government. These two German airlines would ultimately represent the disparate forces Roosevelt and Trippe felt most threatened the defense of the western hemisphere and would require a focused effort to contain.

At the beginning of 1939, the growing German presence in South America was alarming for a number of reasons. First, the presence of belligerent foreign nationals, some of whom were active Luftwaffe pilots, signaled a clear danger to the security of the Panama Canal. The canal was of vital strategic importance to the United States since it allowed the Navy's battleships to change oceans quickly. A threat to this capability meant the loss of strategic mobility in the face of emerging threats from

⁵⁶ Ibid., 74-75.

⁵⁷ Conn and Fairchild, 75-76.

Germany in the Atlantic and Japan in the Pacific. The Germans and Italians now had the capability to attack this vital resource by sabotage or by converting Condor syndicate trimotors and FW 200s into bombers and flying the short two hours from their northernmost bases in South America.

In September, 1939, U.S. intelligence officials from Brazil reported mysterious flights by German owned planes flying off approved routes, landing, and returning unannounced with German passengers.⁵⁸ The Military Intelligence Division of the War Department General Staff reported the state government of Para in northern Brazil had granted the Condor Syndicate permission to extend operations to Oyapock on the French Guinea frontier using landplanes. According to the intelligence division, this German request was most likely motivated by a desire to exploit local gold deposits and link the German espionage system along the Brazilian coast. To counter this Condor route adjustment, the War Department secretly funded Pan American's establishment of a Belem-to-Rio route, effectively cutting the espionage network in half.⁵⁹

In March of 1941, the War Department's Military Intelligence Division reported a series of new Condor Syndicate weekly service flights to relatively sparsely populated areas of Brazil with no apparent economic justification. Intelligence agents in Brazil notified Pan American and concluded the purpose of new Condor construction was to establish mutually supporting fighter airfields and challenge U.S. air reinforcement to the Natal area.⁶⁰ Intelligence officials stressed the importance of eliminating all Condor employees and assets from Brazil. Agents also reported unprecedented and unwarranted levels of German stocks. Condor had amassed over 300,000 gallons of aviation fuel

⁵⁸ G-2 report #2298, 14 SEP 1939, War department correspondence, folder #6, box #15, Richard K. Smith papers, Auburn University Special collections.

⁵⁹ Military Intelligence Division, War Department General Staff, report #2379 dated 25 April 1940. Folder #6, box #15, Richard K. Smith papers, Auburn University Special collections.

⁶⁰ Intelligence report #2651 from American Embassy in Rio, 19 March 1941. Folder #6, box #15, Richard K. Smith papers, Auburn University Special collections

positioned from Macelo north to Belem and Natal and Recife, not a typical amount for local feeder airline operations.⁶¹

As German tanks began rolling into Poland in September, a deluge of intelligence gathered along Trippe's Brazilian routes seemed to support both the President's and Secretary Stimson's suspicions that the Axis powers were attempting to gain positional advantage in the Americas. To counter the growing threat posed by Condor in the fall of 1939, President Roosevelt articulated three objectives underpinning his strategy for hemispheric defense. The first was the elimination of commercial airlines owned, controlled, or operated by Axis nationals and their replacement by United States or locally controlled companies. Second, the policy outlined the need to develop airways and airfield facilities that would support projection of American military airpower into strategic areas. Finally, the policy required the War Department to make preparations that would permit air operations to begin at once in the event of an actual or imminent hostile air attack.⁶² The War Department determined the Axis threat from South America would have to be confronted in two ways.

First, SCADTA and Condor Syndicate airlines would have to be eliminated from South America. These front companies for the SS and Luftwaffe in Colombia and Brazil, respectively, were a valuable intelligence source for the Nazis.⁶³ With these companies gone, Germany would lose a valuable propaganda machine in the region. They would also lose access to environmental and intelligence information necessary for a successful sea or airborne-based invasion. Lack of a sophisticated intelligence network to aid Hitler in developing a comprehensive and focused air campaign would cost him the Battle of Britain just 18 months later, dashing any hope of a successful invasion.

⁶¹ Intelligence report #2698 dated 1 May 1941. Folder #6, box #15, Richard K. Smith papers, Auburn University Special collections.

⁶² Conn and Fairchild, 75.

⁶³ Bender, 339.

Second, a system of bases and airways would have to be built and manned in Central and South America to defend against the threat of an Axis assault from West Africa. Should the French and British lose control of their West African colonies, the Axis would be positioned within 1900 miles of Brazil. This was a threat to the Western Hemisphere the President was unwilling to accept.

With Germany firmly entrenched in Poland and turning its gaze westward, elimination of German front companies from Latin American seemed more urgent than ever. There was one piece of information Pan American had not readily provided the government that made the calculus of South American defense seem a little less complicated. Juan Trippe informed the War Department he had secretly purchased 85% of SCADTA in 1930.⁶⁴ War Department planners now simply saw this as a matter of hiring and firing employees that were of the appropriate nationality and loyalty. As the senior partner, however, Trippe was not eager to take over control of the company from Austrian industrialist Peter von Bauer. Von Bauer was something of a national hero in the country, and if the Colombian government discovered he had sold the national airline to the United States, he could lose goodwill as well as business. There were also political sensitivities to be managed. The Colombians were not ready to see such a valuable national symbol stolen by the Americans, especially after suffering the humiliating “revolution” at the turn of the century that the United States manufactured to seize Colombia’s northernmost provinces. For the U.S., the result was the creation of the Republic of Panama and its strategic canal. For Colombia, news of an American takeover would seem distressingly similar.⁶⁵ Trippe realized this was a job not for brute force and heavy handed tactics, but of persuasive commercial diplomacy and secret intelligence operations.

⁶⁴ Bender, 145.

⁶⁵ Daley, 96.

If SCADTA was to divest itself of Nazi sleepers, it would have to be done delicately. In December of 1941, Trippe decided to allow one of his Seattle-based, Spanish-speaking employees to work for the Office of Strategic Services (OSS) and conduct counterespionage against SCADTA employees to determine who would go and who was essential for the near-term operation of the company.⁶⁶ Right before Christmas, Bill Del Valle, an engineer serving as the company's liaison to Boeing, received a telephone call summoning him to New York immediately. Once at the Pan Am Chrysler building, he was instructed to pack his bags and travel to Colombia via a circuitous, non-Pan American route. He had to keep his mission secret, even from his wife, and report to the Del Prado hotel in Barranquilla where he would receive further instructions. Once in his hotel room, Del Prado ripped open a sealed envelope instructing him to go to the Victoria Hotel in Bogota and report to the embassy to meet with the American ambassador.⁶⁷

Arriving in Bogota, Ambassador Braden invited Del Valle into his office and closed the door. Even though it was the middle of the day, he had the shades drawn closed and candles provided the only illumination. Present also were two other Pan American employees and people Del Valle didn't recognize, presumably OSS officers. The Ambassador told Del Valle he would be working a cover job for the Germans during the day but providing valuable intelligence to the Americans at night. Del Valle felt rather pleased with this exciting new job and set out on his first collection mission with SCADTA's chief engineer. Much to Del Valle's disappointment, he failed to find much evidence of Nazis or Nazi pilots.⁶⁸ He worked diligently at his cover job and quietly went about his business as frustration grew louder in Washington over the failure to find a quick solution to the SCADTA problem.

⁶⁶ Daley, 296.

⁶⁷ Daley, 296.

⁶⁸ Ibid., 298.

Trippe, sensitive to the political, legal and commercial intricacies of the situation, proposed what he termed “plan B” to the government’s inclination to raid and disband the airline. He brought together a great many disparate elements to soften the blow to the Colombian government while effecting swift but gentle change at SCADTA. Trippe would begin to send in DC-3s, the best and fastest airliners in service at the time, and start replacing and upgrading stations along SCADTA’s routes. SCADTA would receive dramatic upgrades to its fleet and infrastructure thanks to its benevolent parent company, Pan American. Trippe then took Del Valle’s final report of 85 Nazi insiders and hired the corresponding number of replacements from around the United States.⁶⁹ He brought them all to New York, had Del Valle interview each one, hired about 35 and sent them on the maiden voyage of Pan American’s new Boeing Stratoliner, the world’s first fully pressurized, four engine, commercial landplane. The newest nationally loyal, and most importantly, non-fascist Pan American employees were on the Stratoliner’s inaugural flight to Colombia, where they would “de-louse” the Pan American subsidiary SCADTA of all suspected Nazi sympathizers. Trippe’s “plan-B” succeeded with no shots fired, no loss of business, and a placated Colombian government in possession of a national symbol even grander than before.⁷⁰

Before Trippe wrote too many checks on Pan American prestige alone, he had to ensure he developed the technical ability to fly the long distances his country required. To engineer the conditions for relative advantage, Trippe would have to find a way to fly farther and faster than any of his competitors, including the Axis countries. He found his answer in the Boeing 314.

Technical Innovations

⁶⁹ Daley, 300.

⁷⁰ Daley, 97-100.

While negotiations and speculation about the Southern Axis threat dominated much of 1939, Juan Trippe faced serious modernization problems at home. Trippe needed a new class of clipper flying boats; ones that were faster, better, and cheaper than his Pacific Martin 130s and would be commercially viable in the increasingly contested transatlantic market.⁷¹ Plus, Trippe envisioned global competition, not pockets of regional supremacy, and needed an aircraft that matched his ambitions. The Boeing aircraft company was under contract to build a new bomber for the Army Air Corps, the B-15, but was running into cost and design overruns. The B-15 project was scrapped and Boeing incorporated its best parts into a new brand of flying boat, the 314.⁷² The Boeing 314 was a new breed of aircraft, more powerful than any in its class. The 314's Wright Cyclone 14 engines produced 1500 horsepower, the most powerful engine on any transport aircraft in operation at the time. The Cyclone's fuel consumption was unmatched, reduced from 55 lbs/hour to 42 lbs/hour, the lowest fuel consumption of any engine in operation. The wings were large enough for a man to enter and walk through, allowing engine access during flight. Malfunctions could now be assessed and corrected in flight without otherwise returning to base or resorting to a sea landing. Engine nacelle accessibility also allowed for innovative maintenance solutions. Access to engine nacelles allowed flight engineers to shut down one engine and feather the propeller to assess damage or complete repairs while continuing to fly on the other three.⁷³ While the Air Force turned the long range B-15 down, these new features suited Trippe just fine as he envisioned paying customers waiting for air service on European and

⁷¹ Compilation of the contribution to the United States War Effort made by government owned Boeing Clippers operated by Pan Am, page 7, Folder #5, box #21, Richard K. Smith papers, Auburn University Special collections.

⁷² Compilation, 10.

⁷³ Compilation, 11.

African shores as his long-range targets. With this powerful new class of flying boats, Trippe would finally be able to combine the two principles of aircraft design, wing shape and power, to make cross Atlantic service economically viable.⁷⁴

With a payload twice as big as a DC-3 and a range of 3,500 miles, the Boeing 314 was especially attractive to the military. The machine offered bulk air cargo and personnel delivery without tethering the route to costly, vulnerable airfields. War was a game of constantly changing variables, of enemy actions and reactions, where routes and terrain are available one minute and contested with armed forces the next. The 314 offered the military fast, far, and most importantly, flexible routing options for wartime delivery of critical cargo. In August 1940, Great Britain found herself in need of just such a machine as German U-boats began picking off merchant shipping in the English Channel and North Atlantic. To circumvent this sub-surface threat, the British purchased three 314s from Trippe for a \$600,000 profit.⁷⁵ For Trippe, Great Britain was not his country, and business was business. Now Trippe could turn his attention back to building his new Latin American system of war bases.

The Beginning of the Airport Development Program

Under the pressure of these circumstances, President Roosevelt entrusted to Pan American Airways, Inc. the task of expanding its existing commercial airfields in Latin America and of building a string of new airports, ostensibly designed for civilian air transport, but actually to provide a chain of military bases for the United States.⁷⁶ This was the beginning of the Airport Development Program, of which General George

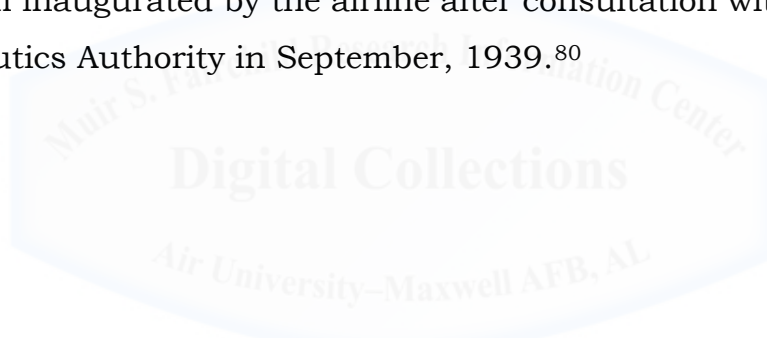
⁷⁴ Daley, 224.

⁷⁵ Compilation, 3.

⁷⁶ Conn and Fairchild, 249.

Marshall said, “the immediate conclusion of the PAA contract is now more essential to our national defense than any other matter.”⁷⁷

Coincidentally, Pan American was already expanding and improving its operations in South America. By the summer of 1940, Pan American already owned 216 airports and 55% of the routes in Latin America.⁷⁸ In September 1940, the opening of a new airfield at Barreires, in the interior of Brazil, cut more than 1,300 miles from Pan American’s Buenos Aires run, and shortened flying time from five days to only three and one-half days. The new airfield enabled planes to avoid much of Brazil’s bulge by flying in an almost straight line from Belem down to Rio instead of hopping along the coast as had been necessary until then.⁷⁹ The Barreires shortcut was one part of an expansion program inaugurated by the airline after consultation with the Civil Aeronautics Authority in September, 1939.⁸⁰



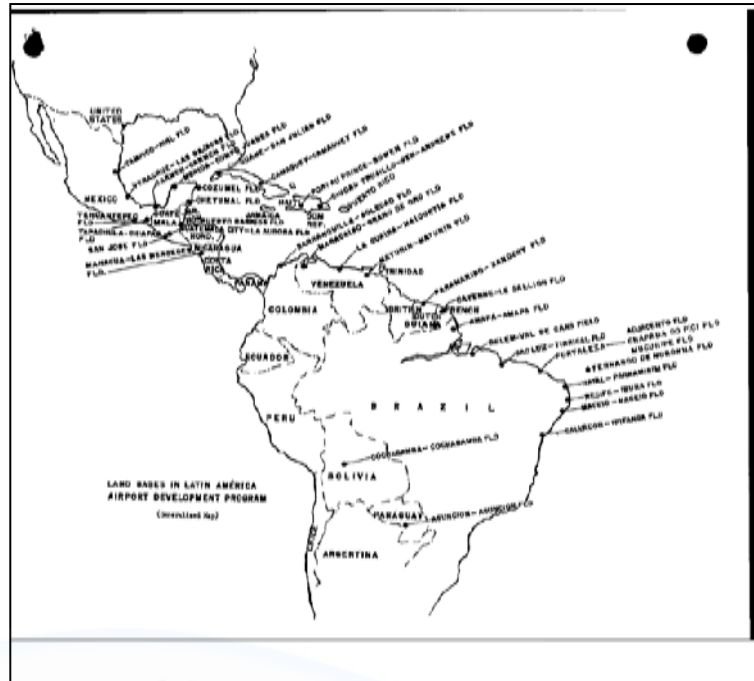
⁷⁷ Conn and Fairchild, 252.

⁷⁸ History: Latin American Division Air Routes. Page #3, folder #5, box #202, PAA Archives.

⁷⁹ “Pan American shortcut,” *Business Week* (Sept. 7, 1940), 39.

⁸⁰ Oliver James Lissitzyn, *International Air Transport and National Policy*, Studies in American Foreign Relations (New York: Council on Foreign Relations, 1942), 352.

Figure 1: The ADP Base Layout



Source: “Acquisition of Air Bases in Latin America”, June 1939 to June 1943. CAPT. Bynum E. Weathers, Jr. USAF Historical Division Research Studies Institute, Maxwell Air Force Base, Alabama.

Another more important development was the changeover from seaplanes to landplanes, which brought into use new Douglas DC-3's and Boeing 307 Stratocliners. Pressurized cabins permitted the Stratocliners to reach altitudes of twenty thousand feet. These were first placed in regular service in August 1940, when Pan American's schedules on the Buenos Aires run were increased from two to seven round trips per week. Part of Pan American's expansion program was, of course, the extension of its air routes to replace the Axis airlines that were beginning to be shut down in 1940 throughout South America. This transformation from land to sea-based planes offered the perfect cover for both the Government and Pan American to rapidly build and

improve large numbers of airfields without drawing unwanted attention.⁸¹

Thus, when the United States Government requested Pan American undertake the construction of new airports and the expansion of existing ones, it was only asking the company to do what it had already been doing on a much smaller scale and in a less hurried manner. Nevertheless, Pan American's management undertook the responsibility of building air bases for the Government with some reluctance. The company was ill- equipped, undermanned, and lacked the institutional knowledge for such a monumental task. Even more importantly, the company's reputation was on the line, risking the delicate trust it had built with its air routes by being associated with military ventures in Latin America.⁸²

The built-in advantages of using Pan American made it the obvious choice in the long run. General Delos Emmons, Commanding General, General Headquarters Air Force, made the following report after his trip to Brazil in November, 1939: "The economic and military value of the Panagra-Pan American Airways System to the United States in its broad concept of hemispherical defense cannot be overestimated...The concentrations of Air Force units from North America into South America will depend solely under existing circumstances upon the full utilization of Pan American facilities."⁸³ Pan American's existing bases also fit neatly into the Air Force's plans for a chain of fields across the Caribbean and the down the east coast of Brazil. There were Pan American facilities at Camaguey, Cuba, and at Port-au-Prince, Haiti. These would require substantial improvements to be useful for military purposes, but they had the prime advantage of being already in existence. Since the United States at this time also wished to establish a major air base in Puerto

⁸¹ Lissitzyn, 352.

⁸² Conn and Fairchild, 252.

⁸³ Conn and Fairchild, 250.

Rico, Pan American, Cuban, and Haitian facilities would provide important stops en route.⁸⁴

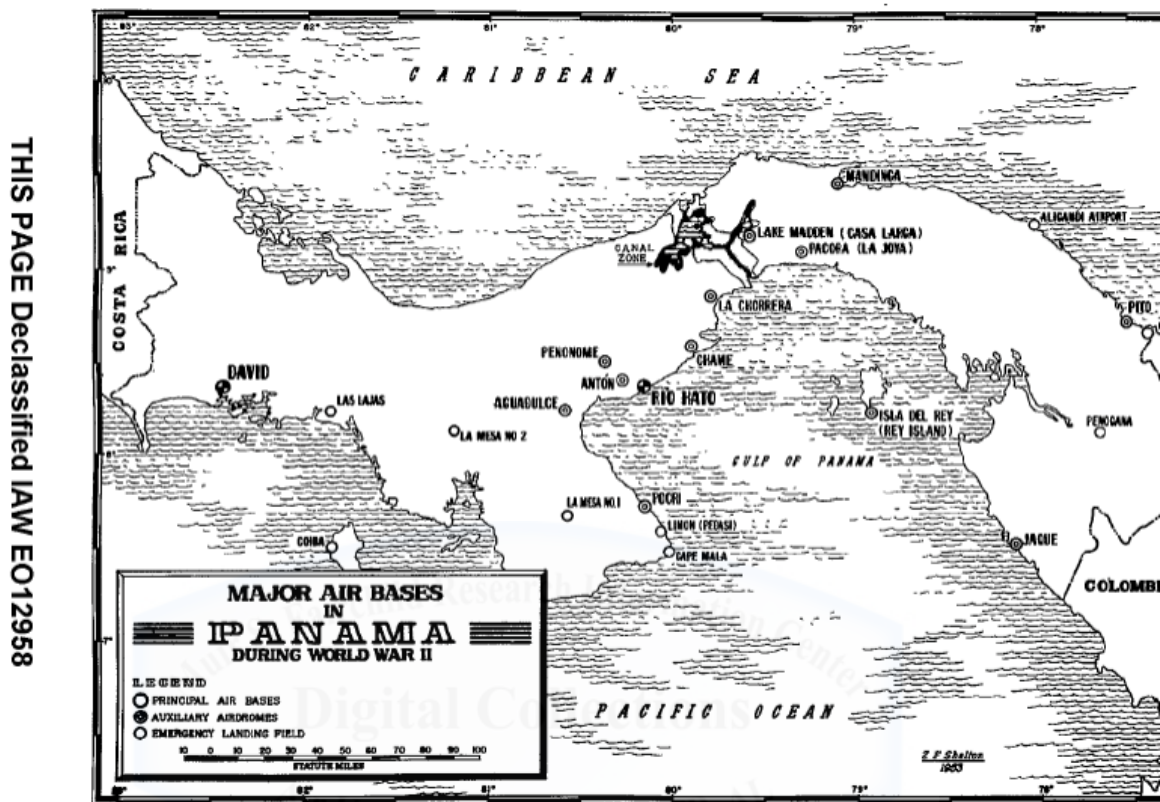
A glance at a map of the Caribbean shows how well these airfields fit in with the British West Indian base sites, for use of which negotiations between London and Washington were ongoing. Acquisition and integration of such a string of bases across the entrance to the Caribbean would create an effective array of aerial “breastworks,” adding depth and early warning capability to the United States defensive strategy of the Western Hemisphere.⁸⁵ To understand why this line of bases would add such defensive value, it is important to understand the problems, or perceived problems, the United States faced at the time.



⁸⁴ Conn and Fairchild, 249.

⁸⁵ Conn and Fairchild, 250.

Figure 2: Major Air Bases in Panama



Source: "Acquisition of Air Bases in Latin America", June 1939 to June 1943. CAPT. Bynum E. Weathers, Jr. USAF Historical Division Research Studies Institute, Maxwell Air Force Base, Alabama.

The U.S. faced three complex problems when dealing with hemispheric defense. First, the United States had to defend against the possibility of acquisition by Germany of the Caribbean possessions of defeated European nations; the second dealt with Axis military ability to strike at will in the Western Hemisphere; and the third pertained to Nazi commercial and cultural penetration of South America. Sufficient solutions to all three, however, depended on the perceptions and

sensitivities of the Latin American Republics. Although the necessity for adequate defense was now more urgent than ever, both the President and Under Secretary of State Sumner Welles feared the resurgence of old resentments of Latin American countries in the event the United States attempted to acquire islands in the Caribbean.⁸⁶

The danger of transfer to Germany of Dutch, French, and even British possessions in the Western Hemisphere caused great alarm in Washington. Until 1939, the Monroe Doctrine, the only strategic weapon the administration had at its disposal, had been invoked on numerous occasions. Many in Washington wanted the United States to make a public announcement that it would not tolerate transfer of any territory in the Western Hemisphere.⁸⁷ Still bolder voices called for the United States to openly seize Caribbean bases for strategic advantage.⁸⁸ The United States won a strategic victory at the conference of Foreign Ministers at Panama in 1939 when a resolution was adopted opposing transfer of sovereignty of American territory from one non-American power to another.⁸⁹

On the day France fell to the Third Reich in 1940, Secretary of State Hull asked Congress for a joint resolution that the United States would not recognize transfer of Western Hemisphere territory from one European power to another. The State Department even warned Germany and Italy on this point.⁹⁰ These diplomatic maneuvers were not by themselves sufficient to ensure the safety of the Caribbean zone, but the administration was hesitant to take additional measures that might expose the United States to criticism from sensitive and suspicious

⁸⁶ Conn and Fairchild, 46.

⁸⁷ A. Lawrence Lowell, "Frontiers of the United States," Foreign Affairs, XVII (July, 1939), 663-669.

⁸⁸ Address of Colonel Frank Knox, to the American Commercial Arbitration Commission, The New York Times, Dec. 9, 1939.

⁸⁹ Declaration of Panama, Oct. 3, 1939, Department of State Bulletin, I (Oct. 7, 1939), 331-333, National Archives, Washington, D.C.

⁹⁰ Conn and Fairchild, 48.

South American countries. The United States finally found its opportunity to set the strategic conditions for success in the Caribbean through an arms deal with England. This deal would not only provide the United States with access to key strategic bases; it would set the conditions for enhanced national security through formulation of the Atlantic Charter in 1941.⁹¹

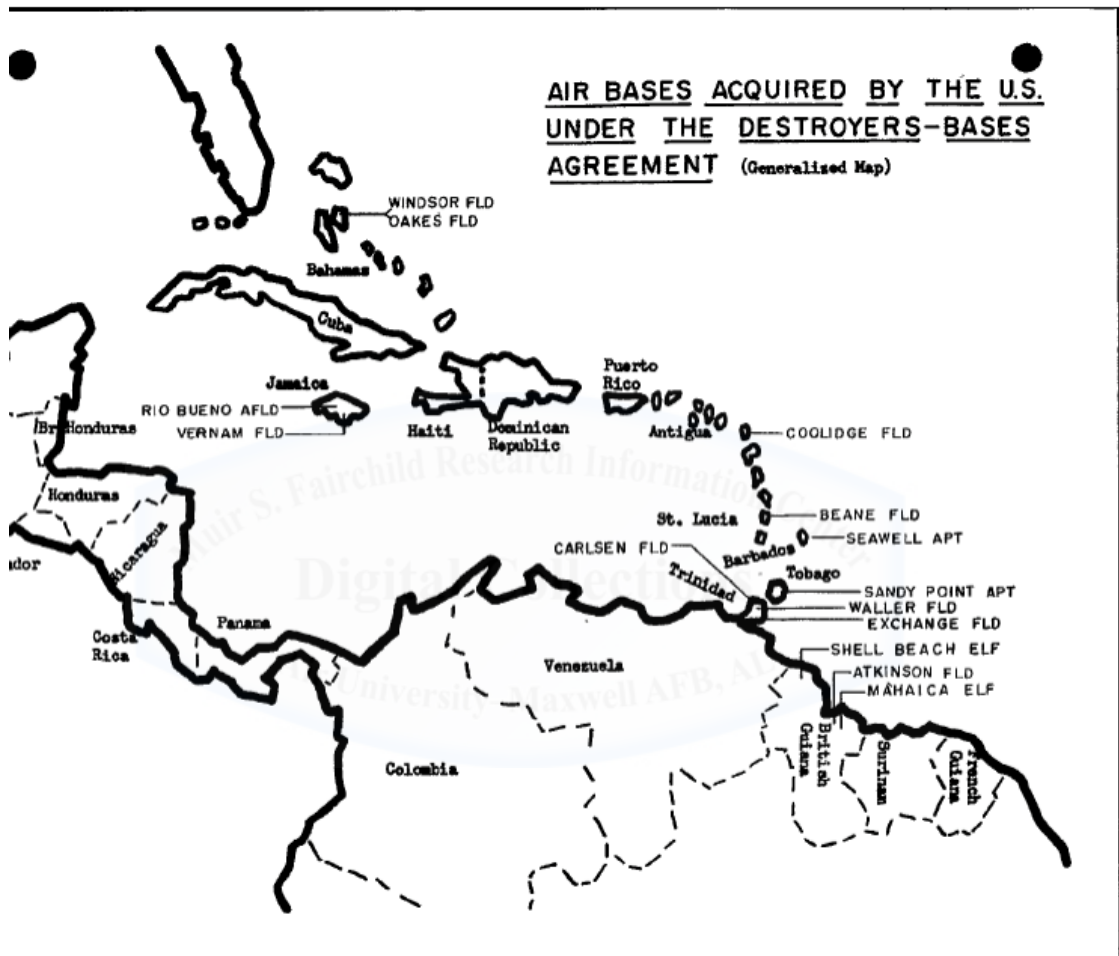
Thus, the “destroyers for bases” agreement with Great Britain in September, 1940, where the United States acquired the leases of naval and air bases in British West Indian possessions, was an important step in hemispheric protection. President Roosevelt was not very enthusiastic about the idea of providing England, the same country U.S. military leaders drafted war plans against during the interwar years, with dozens of destroyers. Further, the President was wary of being portrayed as “pro-war” during the 1940 elections. Though inclined only to provide Winston Churchill with “surplus” ammunition and small arms in the deal, President Roosevelt also realized a defeat for England would mean instantaneous staging bases for Germany in the Western Hemisphere. This dilemma for the President proved to be a critical step in laying the foundation for a chain of defensive bases to counter Axis encroachment. By providing Great Britain with fifty “surplus,” somewhat outdated destroyers, the United States was able to acquire basing in Newfoundland, Jamaica, St. Lucia, Trinidad, Antigua, British Guyana and Bermuda.⁹² Though Bermuda and Argentina were co-use bases with the United Kingdom, the United States now had geo-strategic, positional advantage over the Axis powers seeking to expand into the Americas. Sensitive to upsetting Central and South American nations that might see this move as a threat to hemispheric stability, the United States took

⁹¹ Burden, 75-76.

⁹² Langer and Gleason, 751-752.

additional measures to inform other American Republics that they were free to use these bases on “the fullest cooperative basis.”⁹³

Figure 3: Air Bases Acquired by the U.S. under the Destroyers – Bases Agreement.



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Source: “Acquisition of Air Bases in Latin America”, June 1939 to June 1943. CAPT. Bynum E. Weathers, Jr. USAF Historical Division Research Studies Institute, Maxwell Air Force Base, Alabama.

The second problem facing the United States, the threat of actual Axis military invasion, although less likely, seemed equally difficult to

⁹³ The New York Times, September 8, 1940.

solve. Army Military Intelligence reports estimated as early as 1939 that Germany and Italy between them had more than 3,000 planes capable of flying the South Atlantic with a bomb load.⁹⁴ In May 1940, a rumor from London reached United States military authorities that German merchant ships were about to head for Brazil with 6,000 Nazis aboard, to be joined by Nazi elements in Brazil to seize that country's government.⁹⁵ Axis bombers capable of flying the South Pacific coupled with the possibility of a Brazilian government take over formed an intolerable combination for the U.S. Chiefs of Staff. The Brazilian "bulge" was considered a keystone of American military plans for hemispheric defense. One course of action the U.S. military pursued was to conduct a series of joint military staff discussions between the Americans and Brazilians. Although these discussions would eventually lead to an effective partnership during World War II, the Brazilians were not particularly interested in most of the plans that the United States military authorities considered mutually beneficial. About the best cooperation the United States could elicit from the Brazilian military was an agreement that "if the United States was attacked by an Old World nation, Brazil would permit the United States to use its naval and air bases and transit its territory, even though Brazil itself was not at war."⁹⁶ Though the United States was the beneficiary of such Brazilian cooperation, the United Kingdom was not, which would rear its ugly head later during the opening phases of the pan-African, lend-lease aircraft ferrying campaign.

Although the Army regarded the bases "solely as a hemispheric defense measure," a new concept of the use of air bases was introduced: to employ the bases offensively. Juan Trippe deserves credit, as much as President Roosevelt, for thinking in terms of a world-wide chain of bases

⁹⁴ Conn and Fairchild, 12-13

⁹⁵ Mark Skinner Watson, U.S. Army in World War II, The War Department, Chief of Staff, Prewar Plans and Preparations, vol IV, Part I, 95-96.

⁹⁶ Conn and Fairchild, 313.

to support air transport (and ultimately power projection) requirements. After all, it was Trippe who was engaging in one-on-one strategy sessions with the British Prime Minister about the merits of offensive aerial resupply and relaying Great Britain's intent to the President. It was just at this time that the destroyer-base negotiations were taking place, and it was obvious that base sites on the British West Indian Islands would be doubly effective if utilized both defensively, to protect the Western Hemisphere, and offensively, to carry supplies to Africa.⁹⁷ The final decision as to how the acquisition and development of these bases should be accomplished rested with the President, who, toward the end of June, authorized Pan American to handle the project.⁹⁸

Efforts were made to keep the program secret, but soon after negotiations began in July of 1940, a Washington newspaper succinctly expressed the reasons why the President had authorized the use of emergency funds for airport building by Pan American in Latin America:

“The plan is to have the airline do what the government itself cannot accomplish without endless red tape and time-consuming diplomatic negotiations, by establishing a series of ultra-modern airports equipped with service, maintenance, and repair facilities.”⁹⁹

Business Week, in its report on the development of the Barreires airfields, also indicated its awareness of the military significance of airports in South America:

“Defense officials nodded knowingly when the cutoff with the great new airdrome in the interior of Brazil was announced. To them, it is the first public announcement of an aviation development program in Latin America, in which the governments of several countries are cooperating with the United States air-defense program for the Western

⁹⁷ Langer and Gleason, 751.

⁹⁸ Conn and Fairchild, 251.

⁹⁹ The Washington Post, July 10, 1940.

Hemisphere. In several cases, Pan American will have the advantage of using these new airports to speed up or enlarge existing services in Latin America.”¹⁰⁰

In a letter from Under Secretary of State Sumner Welles to the War Department a week before the Airport Development Program contract was signed, the State Department gave its official blessing to the Pan American organization:

“It is the opinion of the State Department that to handle this matter on the basis of negotiating treaties with the various countries concerned would be either impracticable of complete accomplishment, or would involve delays of such duration as might be fatal to adequate preparations to meet the present critical international situation. For that reason, the project for the development of this work by the Pan American Company under the direction of the War and Navy Departments appears to the Department of State the most practicable method of achieving the desired results.”¹⁰¹

After four months of negotiations between the Government and Pan American, a contract was signed on November 2, 1940, by “Skull and Bones” alumni Secretary of War Henry L. Stimson and Juan Trippe providing for construction by Pan American Airways on specific air bases in Latin America. Under this contract a new company, Pan American Airports Corporation, was formed to do the actual construction work under the supervision of the parent company.¹⁰² The latter was also to conduct all subsequent negotiations of leases, work permits, and other necessary business arrangements.

The Airport Development Program contract stipulated the nominal sum of \$1.00 as payment to Pan American Airways, Inc., for this work. In actuality, at the recommendation of General Marshall, \$12 million was immediately set aside from the President’s emergency funds for the

¹⁰⁰ Business Week (Sept. 7, 1940), 39.

¹⁰¹ Conn and Fairchild, 253.

¹⁰² Conn and Fairchild, 249.

project. Later, when fields in Paraguay and Bolivia were added to the program, the amount was increased to \$19 million.¹⁰³ By the end of 1942 the amount involved was \$33 million, and eventually the entire program cost the Government more than \$90 million, with an additional \$10 million paid by mid-1945 for maintenance work done by Pan American on the fields.¹⁰⁴

The airfields, facilities, stocks and employees produced by Pan American's Airport Development Program would form the backbone of the U.S. military's hemispheric defense effort. Later, the military would use these same Pan American resources to project power into Africa.

Airport Development Program: Predominant Activities

As the SCADTA issue was resolved, the War Department turned its attention to Brazil, the most likely landing point in the Western Hemisphere in the event of an Axis invasion. President Roosevelt summoned Juan Trippe to Washington to discuss the use of his facilities in the event of such a national emergency. Roosevelt was wary of Trippe's growing monopoly in the Americas, and certainly didn't want to enable Pan Am's global ambitions with taxpayer dollars. Roosevelt recognized the potential for the Pan American "octopus" to stretch its tentacles even farther around the globe with a new string of paved airports ready for commercial use after the war. He did, however, consider the location of Trippe's bases to be of grave importance to national security and so began a series of meetings with Secretary Stimson, Trippe, General Arnold, and Congressional leaders to discuss the secret militarization of Central and South America.¹⁰⁵

¹⁰³ Conn and Fairchild, 252, 257.

¹⁰⁴ Conn and Fairchild, 258.

¹⁰⁵ Daley, 98.

The War Department deemed Trippe's South American airline system of supreme importance in accomplishing national military objectives. There was one significant shortcoming. Trippe's existing bases were fine for DC-3s and Boeing 314s but too far away and too weak to support shorter-range fighters and heavier bombers. The U.S. government considered four viable courses of action. First, they could create a government agency to build the bases under the authority of the Civil Aeronautics Authority and use Pan American's existing facilities as needed under contract. Second, they could make Pan American build the bases for them. Third, they could create a private corporation to build them. Lastly, they could contract at least twenty different Latin American governments to build the bases themselves. Options one, three, and four were deemed not feasible either because they required the passage of new laws, had enormous startup costs associated with them, or required diplomatic efforts far beyond what the State Department deemed logical or even possible.¹⁰⁶

The argument for a chain of bases was much stronger after German tanks started rolling into France, especially since French territories in the Caribbean and West Africa could facilitate an Axis invasion force into the Americas. In the fall of 1940, using money from President Roosevelt's emergency fund, the War Department directed and assisted Pan American to begin building 25 land bases and nine seaplane bases in 14 different countries in the Caribbean, Central and South America to counter Axis influence in the region. Under this secret modernization program, known as the Airport Development Program, Pan American began improving existing airfields for modern military aircraft use and constructing new intermediate bases to get military aircraft to the Brazilian bulge.¹⁰⁷

¹⁰⁶ Daley, 303.

¹⁰⁷ Conn and Fairchild, 254.

There was no doubt from the War Department's perspective of the importance of this project. In a letter to Mr. Nelson Rockefeller, Roosevelt's Coordinator of Inter-American Affairs, Chief of Staff General George C. Marshall underscored the strategic importance of the "de-Germanization" of Latin America.

"The matter is one of vital importance to national defense. We all agree that German controlled airlines in South America provide Germany with the means for spreading Nazi propaganda, for communication with German agents and sympathizers in South America, and for familiarizing German military personnel with South American terrain. They also provide bases which would be of great strategic value to an invader. Consequently, these airlines constitute a definite threat to the security of the United States in the event of war with Germany."¹⁰⁸

Marshall then continued to direct the War Department staff to align the United States military toward Pan American efforts:

"Your division is charged with the responsibility of executing the present secret contract with Pan American Airways, Inc., for the development of airfields in Central and South America. You are hereby directed to...modify the existing contract with Pan American Airways, Inc., so as to provide an airfield site in Liberia (Firestone property)...due to the urgency in initiating the ferry service for the British, everything possible should be done to expedite [this]..."¹⁰⁹

Similarly, Lieutenant General Robert Olds of the War Department, father of Air Force triple ace Robin Olds and commander of the Air Corps Ferrying Command, stressed the advantages of using the Pan American system by stating, "The economic and military value of the Panagra-Pan American System to the United States in its broad concept of hemispherical defense cannot be overstated...The concentration...of Air Force units from North America into South America will depend solely

¹⁰⁸ Letter, Marshall to Rockefeller, 1 Feb 1941, Folder #14, box #381, PAA Archives

¹⁰⁹ Memorandum OCS/17461-214 from Air Transport in Liberia, Journal of Transport History. Stanley, William R. University of South Carolina, 193.

under existing circumstances upon the full utilization of Pan American facilities...”¹¹⁰

Trippe was not overly thrilled with the task the United States government had given him. He was not a construction company and didn't have the resources or knowledge to handle a project of such large scope. Not only would the small Pan American subsidiaries in each country like Panair do Brasil and Compania Mexicana have to spearhead their respective projects, they would have to persuade local nationals to commit treason by constructing military facilities for a foreign government. When word spread, Pan American could stand to lose overnight their carefully engineered commercial hegemony it took Trippe thirteen years to build.¹¹¹

War Department officials understood the tremendous risk they and the President were asking Pan American to take. They tried to show the positive side to Trippe. Not only was this in the vital interest of the security of the United States, but they were merely asking him and his company to superimpose improved airstrips onto the ones he already owned, plus build a few more. Trippe knew it was more than just airfield improvement. This was a massive undertaking of ripping up old strips, laying out brand new ones, tearing into virgin jungle teeming with wild animals and deadly insects, and building vastly larger facilities to house, feed, and support squadrons of U.S. fighting men. Not to mention the hundreds of gallons of fuel and oil he would have to stock at each field with the means to requisition more at a moment's notice.¹¹² This was no small undertaking, and Trippe knew it. Trippe also knew he was battling Export airlines and their newly purchased Honduras-based TACA airlines in the House and Senate over Pan American's prized Central American routes. TACA was a British-owned company that held third-

¹¹⁰ Conn and Fairchild, 250.

¹¹¹ Letter from Trippe to Sam Pryor, 2 August, 1941. Folder #12, box #56, PAA Archives.

¹¹² Bender, 320-323. Bender describes at length Export airlines' attempt to break into Trippe's Latin American and European monopoly.

class status as far as Trippe was concerned, but had begun to make a sizable profit in the last few years.¹¹³ With the monopoly threatened by an Export-TACA merger, Trippe decided that maybe a Government-funded expansion program in which the President would personally promise to protect Pan American market share was just what he needed. Trippe decided to give in to the President's pressure and accept the job of Pan-Americanizing the Western Hemisphere. He created the Pan American Airport Company and appointed Vice-President Grosvenor to lead the charge.¹¹⁴

Although the construction contract between the Government and Pan American Airways, Inc. was not signed until November 1940, preliminary surveys of existing airport facilities and negotiations for new sites and improvement of existing bases were ongoing. Governmental red tape, the need for secrecy, and the persistent suspicions of Latin American nations delayed the project considerably. In response to a complaint by the General Staff committee in charge of the Airport Development Program, an Army deputy contracting officer cited "necessary slowness in negotiating with the various governments in Latin America" and difficulties in obtaining needed materials, as major reasons for the apparent lack of progress.¹¹⁵

There was reason for the military to be concerned with the pace of construction. At the sea base at Aratu, for example, purchase of land was delayed because of a dispute between the Brazilian Navy and the Brazilian State of Bahia over riparian, or riverine rights.¹¹⁶ Construction was hindered also by heavy rains and tropical weather conditions.¹¹⁷ Other factors were troubling as well. When existing sod runways, which had been able to absorb the torrential rains, were replaced by hard-

¹¹³ Corporate assessment of TACA airlines, January 1941. Folder #1, box #254, PAA Archives.

¹¹⁴ Daley, 306.

¹¹⁵ Conn and Fairchild, 254.

¹¹⁶ Air Development Program: General reports of all Brazilian bases. End of year report, 1940, page 17, folder #9, box #6, PAA Archives.

¹¹⁷ Conn and Fairchild, 255.

surfaced airstrips, drainage difficulties resulted from the forcing of the heavy downpours into new and narrow channels. The climates and sub-soil conditions encountered not only varied from base to base, but were often unfamiliar to American engineers. An adequate flexible paving solution might be obtained after considerable experimentation at one base, but the same solution might prove useless at a base only a few hundred miles away because the chemicals in the soil varied so widely.¹¹⁸ Existing airfields that had been capable of taking commercial traffic were not necessarily well-suited for the heavy pounding of military aircraft on ferrying operations. Since limited meteorological information was available for bases cleared out of jungles, Pan American engineers often had to lay out their runways on the basis of incomplete or inaccurate data. New sites were so hastily chosen that sometimes they were not very suitable, but were merely the best of several bad sites.¹¹⁹

Lack of sufficient Pan American personnel also hampered the project. It was difficult to obtain qualified men, especially for the important administrative work at the beginning of the program.¹²⁰ Both Pan American and Army records for these years affirm this fact. One PAA report states: "Completion dates were set by the government which made it necessary to start all projects simultaneously."¹²¹ It was necessary, the report goes on to say, to secure large numbers of American personnel from engineering and construction firms in the United States. "Since many of the men were not familiar with conditions in foreign countries, we had, at the start, a large turnover...and were forced to ...return some of the men to the United States."¹²² Lack of native foremen was also a problem, and at least on one base, local tropical diseases (to which Pan American employees were not

¹¹⁸ G.F. Pelham report, director of airports and executive engineer, Airport Development Program. Page 10, Folder #11, box #78, PAA Archives.

¹¹⁹ Pelham report, 11.

¹²⁰ Pelham report, 12.

¹²¹ Pelham report, 13.

¹²² Pelham report, 13.

accustomed) also made for delays. According to Army progress reports, the supervising engineer on one job, overwhelmed by a sick work force and engineering difficulties outside his expertise, was seen more frequently “in town, rather than at the field, and usually intoxicated...”¹²³

Delays in construction were also attributable to local norms and practices of construction, counter-intelligence efforts, and bureaucratic bungling from the War Department. For instance, a Life magazine reporter observed in December 1941 that work on the ADP bases progressed under “peculiarly Latin-American circumstances. It is performed almost exclusively by hand labor under the interested eyes of Axis agents, attached to the German and Italian consulates and to German and Italian airlines that still web the South American continent.”¹²⁴ Occasionally, delays in the program were the result of inadequate Army planning. For example, specifications for the construction of barracks at a base not far from the equator contained complete and detailed plans for Arctic housing. ADP personnel, working with local representatives from the Army Corps of Engineers, created and developed plans suitable for the conditions existing at the base.¹²⁵

Juan Trippe and Pan American were soon made aware of these challenges. The Secretary of War registered a formal complaint with Trippe, inconsistent with their close, patriarchal relationship but entirely expected given the pressure from the President himself to complete the project in a timely manner.¹²⁶ Meanwhile, Pan American Staff members had already informed Trippe of administrative problems, leading to the appointment of Samuel Pryor to head the entire effort.

¹²³ Conn and Fairchild, 255.

¹²⁴ Life, XI (December. 15, 1941), 95-96. Folder #13, box #516, PAA Archives.

¹²⁵ Voit Gilmore, Pan American Airways, report on Airport Development Program history and accomplishments. Page 32, folder #227, box #336, PAA Archives. Gilmore would serve in an administrative capacity during ADP initial construction before taking on the job of PAA-Africa chief.

¹²⁶ Conn and Fairchild, 255.

The Bases

Once the contract with Pan American was signed, the War Plans Division, which had been conducting the negotiations for the government, turned the enterprise over to the G-4 Division of the General Staff. In February 1942, the Army Air Forces, with General Hap Arnold at the helm, took control. A contract officer was provided by the Army to supervise the execution of the contract and serve as a liaison between Pan American and the War Department.¹²⁷

A joint planning committee, consisting of officers from the Army and Navy War Plans Divisions, was responsible for the selection of airport sites.¹²⁸ The committee, which also included Pan American representation, defined the scope and objectives of the Airport Development Program.

The Committee specified that airfields should be located along the coasts rather than further inland in order to facilitate logistics and ensure availability of naval and land forces for their protection as well as provide antisubmarine facilities. Pan American was responsible for surveying air base sites, providing meteorological facilities and support, and acquiring land for the bases.¹²⁹

In its entirety, the Airport Development Program contract provided for the construction or improvement of airport and air support facilities at fifty-two locations, for their maintenance, and for a supply of fuel during construction.¹³⁰ Three fields in the British West Indies, included in the original contract, were completed by the Army Corps of Engineers, although Pan American did a considerable amount of work on some of them in the beginning. Plans for a large base at Martinique fell by the wayside because of the French Governor General's continued adherence

¹²⁷ Conn and Fairchild, 253.

¹²⁸ Conn and Fairchild, 251.

¹²⁹ Conn and Fairchild, 251.

¹³⁰ Bender, 333.

to the Vichy regime. An airfield at David, Panama, originally scheduled under ADP, was finally given to the Army for construction.

The original contract called for work on twenty-one sites, but by the time the Airport Development Program was completed, Pan American had built or enlarged 49 airfields.¹³¹ On the West Indies-Brazil route were fields in Cuba, Haiti, the Dominican Republic, Dutch Guiana, and eight Brazilian fields. Most of the Brazilian airports included facilities for both land and seaplanes, and some included facilities for lighter-than-air craft. LTA's, or surveillance balloons, would hopefully be useful in antisubmarine warfare. On the route from Texas through Panama to northern South America, fields were built or enlarged at three sites in Mexico, at one each in Guatemala, Nicaragua, and Colombia, and at three sites in Venezuela.¹³² A few airport locations were dictated by political considerations, such as those in Bolivia and Paraguay, to shore up Latin American support against Axis encroachment. Other bases were chosen simply because a field was already in existence. Special circumstances determined certain air base sites. Natal, the easternmost point on the Brazilian bulge, was selected because of its strategic position. Prevailing winds also made Natal a favorable site.¹³³

Perhaps the most important factor determining the placement of airfields was the range of the planes that would be using their facilities. Medium and heavy long-range bombers had no need for a chain of fields, but short-range fighters and smaller planes required such a network. Satellite fields also had to be built for alternate landing sites. Several airports developed under the ADP were not very useful after the war for commercial aviation purposes, but military necessity determined where they were built. Similarly, as the Battle of the Atlantic turned in favor of the Allies, and as larger bombers and transports were designed and

¹³¹ Gilmore report, 15.

¹³² Conn And Fairchild, 254.

¹³³ Samuel Eliot Morison, *History of United States Naval Operations in World War II, The Battle of the Atlantic, September 1939-May 1943* (15 vols., 1947-1962), I, 379.

produced with more robust instrument flying capabilities, some of the bases deemed essential in 1940 became somewhat insignificant as time passed.¹³⁴ For example, the island of Cozumel was strategically important for only a short period of time and represents an interesting example of the changing needs and problems of hemispheric defense. This low, flat island, lying twenty miles northeast of the Yucatan Peninsula, was home to only a few fishermen in 1940. In 1939, Pan American had found a convenient lagoon there and installed communications equipment on the island, using the field only for emergency landings. These facilities, however, were largely destroyed by a hurricane in 1943, and Cozumel again lay dormant.¹³⁵

In May 1942, German submarines began operating in the Gulf of Mexico, sinking tankers and other vessels. Scout planes, observing the U-boats surfacing, would report their locations to bombers at the nearest bases but with little effect. There were no suitable air bases in the general area, and submarines would quickly disappear before attacking planes could reach the scene. The Navy, therefore, gave ADP a directive to build a single landing strip on Cozumel so that bombers could lie in wait for the harassing U-boats. The directive specified that the landing strip must be capable of landing and parking a lone PBY and must be available for use within three weeks. Working almost entirely with hand labor, ADP crews constructed the necessary runway in eight days, and U-boat attacks thereafter ceased to be a problem for Caribbean shipping in the vicinity of Cozumel.¹³⁶

Cozumel's isolation and location made it an ideal air base, and it was subsequently developed into one of the largest airports in the Caribbean area. But as the rising fortunes of war enabled the United States to lurch from its defensive posture and carry the fight to Europe,

¹³⁴ Burden, 77.

¹³⁵ Pelham report, 35.

¹³⁶ Pelham report, 36.

and as long-range bombers were built, the base at Cozumel gradually lost its importance.¹³⁷ The fight against enemy U-boats from the newly constructed bases, however, pressed on.

ADP Anti-Submarine Defense

The ADP airfields made their greatest defensive contribution in support of anti-submarine operations. Even though Nazi submarines concentrated on the North Atlantic sea lanes for most of the war, they did find value in disrupting shipping in the Caribbean. The unique hydrography of the Gulf of Mexico and Caribbean forced merchant ships to utilize a handful of predictable sea lanes, making them particularly susceptible to German U-boats. Narrow choke points like the Windward Passage made ship hunting particularly easy for submarine captains, as did the lack of convoy escorts.¹³⁸

Defense against submarines depended upon a network of patrols that could observe the threat, communicate the intention and location of the threat to a shore based facility, and disseminate that information to other merchants or military vessels in the area. These patrols and ground relay facilities depended upon the Airport Development Program bases and the Army Air Communications Systems (AACS) installed there. As work progressed and state-of-the-art military communications equipment reached all major ADP bases, it became possible to station land-based Navy PBY-5s all along the Southern Atlantic and Caribbean. Directly following Pearl Harbor, a small section of six PBY-5As was

¹³⁷ Pelham report, 37.

¹³⁸ Admiral Karl Doenitz, *Memoirs, Ten Years and Twenty Days*, translated by R.H. Stevens and David Woodward (Cleveland, 1959), 251.

assigned for duty at Natal, helping with the construction and patrolling the entire coast of Brazil for enemy activity.¹³⁹

In June 1942, Hitler decided to launch a major attack against Brazilian shipping.¹⁴⁰ Between sixteen and eighteen U-boats were already operating between Cape Sable and Key West, and nine others were ordered to the area between the Bahama Channel and the Windward Passage, into the Gulf of Mexico, and off Curacao, Aruba, Trinidad, and the Guiana coast. The Germans were pleased with the target-rich environment found in these “distant waters” of the Caribbean, sinking 148 vessels between May and June of that year. German U-boats struck a “rich vein of gold” in August, sinking 10 ships in only a couple of days.¹⁴¹

As ADP bases began to receive Navy patrol planes with adequate ground-to-air communications capabilities, and air patrol activity increased in the Caribbean and South Atlantic, German U-boats headed for safer hunting grounds. As soon as anti-submarine activity started to become effective in any way, including reporting, Doenitz would transfer his submarines to more lucrative areas.¹⁴²

By April 1943, five-plane barrier sweeps were being conducted every day from the Pan Am base at Natal.¹⁴³ In addition to directly attacking U-boats, air patrols could signal submarine sightings to convoying ships, alerted them to danger and giving them time to react and change course. Both plane and patrol vessels would then launch a joint attack on the U-boat. Since submarines typically dove when sighting an anti-submarine or observation plane, the mere presence of an air patrol equipped with advanced air communications gear could put a

¹³⁹ Report of equipment and operations, Dec 1941, Brazil, Airport Development Program. Page 3, folder #39, box #252, PAA Archives.

¹⁴⁰ Morison, 378.

¹⁴¹ Morison, 251.

¹⁴² Morison, 348.

¹⁴³ Morison, 389.

U-boat wolf-pack out of offensive operation for a few hours at a time.¹⁴⁴ Because of this increased presence of military aircraft and surface vessels from coastal bases, Admiral Doenitz's U-boats in the Caribbean and South Atlantic were put on the defensive, making life very hazardous for their crews. Doenitz observed:

“We found [in June, 1943] that the whole of the Atlantic was under strong air patrol, either by long-range four-engine machines or by carrier-borne aircraft from American carriers stationed in the central and Southern Atlantic for the purpose of hunting U-boats...The employment of their air forces by the British and Americans against the U-boats all over the world had undoubtedly increased; they continued to see large numbers of aircraft for this purpose until the end of the war.”¹⁴⁵

Commenting on the German Navy's efforts to increase U-boat “station time” hampered by increased allied air activity, Doenitz observed, “In the meantime refueling from U-tankers had become such a dangerous business that the practice had to be abandoned and the boats were therefore forced to break off operations and return to base more quickly. Finally, the losses which we suffered in those distant waters were also inflicted, as far as we were able to ascertain, in the most part solely by aircraft. Our hopes that by operating in distant waters we should be able to cut down our losses had not materialized.”¹⁴⁶ The ADP program, therefore, had a significant impact as bases of operation for Navy patrol planes using the AACS system to counter German U-boat activity against allied shipping.

The ADP bases were also used to transport necessary strategic war material to the United States from Latin America. Before the introduction of alternate synthetic material, the famous “banana runs”

¹⁴⁴ Louis Shores, *Highways in the Sky, The Story of the Army Air Communications System*, (New York, 1947), 65.

¹⁴⁵ Doenitz, 417.

¹⁴⁶ Doenitz., 418.

brought essential crude rubber back from the Amazon Valley.¹⁴⁷ Eastern Airlines also brought back mica and quartz crystals via the ADP routes and bases, essential for the production and operation of radios and other electrical equipment.¹⁴⁸ Brazil had served as the main Axis source of this critical raw material until 1941 when the United States bought the country's entire supply.¹⁴⁹

Intelligence Gathering initiatives: Pan Am as a Means of Intelligence Augmentation.

By the middle of 1940, Pan American started to slowly turn the organizational gears of the Pan American Airport company in South America. Though progress was slow, the airline was quick to cooperate with the War Department intelligence services to provide valuable information on Axis activity. With the invasion of France and Africa in June, German and Italian activity in Latin America and in the Atlantic increased. The War Department developed an insatiable appetite for information from all sources, including Pan Am, to keep tabs on local Axis activity. Employees of the company aided military intelligence efforts by reporting on the enemy during routine commercial flights. Pan American Airways captain Merten, for instance, provided detailed reports of his flights from the East Coast to the Azores to the G-2 section of the War Department. In one such report, Merten described the patrol patterns, evasive maneuvers, and specific disposition of German U-boats between New York and Bermuda:

“On one particular day I saw no less than 30 submarines between New York and Bermuda, all surfaced and conducting random patrols in the area. Some did not

¹⁴⁷ Reginald Cleveland, *Air Transport at War*, (New York, 1946), 93.

¹⁴⁸ Cleveland, 199.

¹⁴⁹ Guerrant, 163.

attempt to submerge at all, and we flew low enough that if we were bombers, we could have destroyed [many of them]...”¹⁵⁰

Sometimes the War Department collected intelligence using its own personnel doubling as Pan American employees. In June of 1940, Army Air Forces aviators were directed by the War Department to participate in Pan American flights throughout Central and South America. They were interested in developing their aviators by allowing them to fly with experienced commercial pilots in tropical environments at night and under poor weather conditions. The military also was interested in using their airmen to collect valuable intelligence on the routes. Wearing civilian attire and donning Pan American uniforms, Army Air Forces pilots and crew members flew the southern routes building valuable experience and reporting on suspicious activities of local and foreign nationals.¹⁵¹ These assignments would help the War Department crystallize the foreign activity intelligence picture in Central and South America and help the Army Air Forces build an experience base for the ferrying and transport missions to come. However, even with experience flying in tropical conditions, AAF pilots would still need accurate weather forecasting over the Atlantic to successfully ferry their aircraft to the African continent. As of early 1940, no such weather forecasting capability existed.¹⁵²

Force Protection Programs: Meteorological Contributions

In July 1939, the United States Weather Bureau established a radio-sonde network for weather operations in the United States. Radio-

¹⁵⁰ Letter from Pan American Airways, Captain Merten to the G-2 section of the War Department, box 00119954, Air Force Historical Research Agency (HRA).

¹⁵¹ Letters from War Department to MAJ Gillespie, A-2, 1939. Box 00119954, HRA.

¹⁵² .Pan American Airways, Inc.: Record of Wartime service. Page 46, folder #4, box #21, Richard K. Smith papers, Auburn University Special collections.

sondes were balloon borne instrument platforms with radio transmitting capability to determine atmospheric pressure, wind direction, and speed at upper air levels. Pan American had been studying this capability as a method of forecasting since 1935 and was now prepared to use it for transatlantic flights.¹⁵³ Through this new service, it was possible to estimate pressure distribution at levels above the surface of the United States. Pan Am took this innovation one step further to facilitate trans-Atlantic flight. The Pan American Atlantic Division Meteorology Department developed metrics far more accurate than the current practice of upper-air wind map isobar readings. They developed a method of extrapolating surface pressure data to higher levels enabling them to approximate atmospheric pressure at various points over the Atlantic Ocean and extending the upper-air maps to the coast of Portugal. This was the first practical application of upper wind level forecasting over the Atlantic and was widely used by the military until a complete network of radio-sonde stations was installed in 1943. Now that Pan American and the War Department had created a core of Latin American experienced aviators with a way to accurately forecast the weather for safe trans-Atlantic flights, they could disseminate their collective experience and knowledge through training and education programs.¹⁵⁴

Force Protection Programs: Airline Training for the War Department

The Pan American Atlantic division participated in various phases of the large-scale aviation training program instituted by the War Department. The division's first contribution to this activity occurred in 1940 when its chief navigation instructor was sent to Florida to organize

¹⁵³ Pan American Airways, INC. History of the Transatlantic Air Services. Civil Aeronautics Board Docket No. 855. Folder #3.1, box #21, Richard K. Smith papers, Auburn University Special collections.

¹⁵⁴ PAA record of wartime service, 31.

and direct a navigation school at the University of Miami. As the training program grew, the division provided an additional meteorologist and assistant navigation instructor. Around this core knowledge base, the school became one of the most important navigation training centers in the country, producing 5,000 Army and Naval aviators and technicians.

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From 1942 to 1943 Pan American participated in the Airlines War Training Institute, set up by the Army to organize training programs for airline personnel operating under Air Transport Command contracts. The Atlantic Division's maintenance training specialist served as the supervisor of standards and specifications for the Mechanics Training Program of the institute. The assistant chief flight engineer and chief navigation instructor for the division prepared textbooks and programs of instruction on navigation principles, celestial navigation, hydraulic principles, engine principles, mechanical principles, flight principles, loading and cruising, and airplane refueling. In September 1943, the Institute's functions were taken over by the War Department.¹⁵⁶

In May 1943, the Atlantic Division established a Service Branch Training school in New York for the Air Transport Command to indoctrinate new officers and enlisted men in airline operation. The curriculum included traffic priorities, billeting, and control of transit passengers and cargo at on-line Air Transport Command foreign stations. By October 1943, the school had trained some 500 military personnel when the War Department decided to consolidate it with three other schools at Hamilton Field, California. There, the Atlantic Division continued to train an additional 300 men in each class, using curricula developed for the Air Transport Command by Pan American Atlantic Division personnel. The Army Air Corps would come to rely on this

¹⁵⁵ PAA record of wartime service, 22.

¹⁵⁶ PAA record of wartime service, 23.

training in 1941.¹⁵⁷ Though not at war, U.S. Army pilots would be flying warplanes into war zones on the African continent to support British forces locked in a deadly struggle for control of the Mediterranean.

Evaluation of ADP by the numbers

During the ADP Pan Am designed, constructed, and maintained 48 airports, seaplane bases, and Navy balloon bases in 14 countries located on 3 continents costing \$120 million. ADP employed in its main offices over 500 specialists including execs, design engineers, techs and office personnel. To supervise work in the field, ADP employed over 1,500 men consisting of project managers, construction engineers, field techs, foremen, and equipment operators. The actual labor was accomplished by over 110,000 native artisans and laborers.¹⁵⁸

During this time, ADP forces cleared over 400 million square feet of various types of terrain, moved over 340 million cubic feet of earth, and laid over 108 million square feet of paved area equal to more than 1000 miles of 20' highway. They erected over 1 million linear feet of fencing and installed 120 diesel power generating plants, with a capacity of over 10,000 KVA's. They installed over 1,584,000 feet of underground electric cable, and over 528,000 SF of overhead electrical distribution lines, serving 5,000 airport lighting units. PAA personnel installed over 100 high speed fueling systems, capable of dispensing 10K gallons of high octane gasoline per minute from over 7,500,000 gallons of underground gasoline storage. They also designed and constructed over 300 permanent airport buildings, and over 1000 barracks, mess halls, etc., with complete water, sewage, and electrical distribution systems.¹⁵⁹

¹⁵⁷ PAA record of wartime service, 23.

¹⁵⁸ Gilmore report, 79.

¹⁵⁹ Gilmore report, 79.

The maintenance cost of the above facilities amounted to approximately \$7 million per year, and to visit all ADP bases would require an airplane voyage of over 18,276 miles. The fact that the airport development program bases were put to such intensive use indicates without question that they satisfied the purpose of hemisphere protection and global logistics for which they were built. In addition to their many contributions to hemispheric defense, the bases provided the United States with approximately 9,500 miles or strategic air lanes for the use of the heavy bombers and long-range transports of World War II.¹⁶⁰

Trippe's concept of employing the Latin American air bases offensively in military operations was put to the test in two situations. In the European theater of war, the ADP bases provided facilities for spectacular ferrying operations bolstering the British position in Libya.¹⁶¹ Second, the bases assumed an even greater strategic importance immediately after December 7th, 1941. At this time, all other air routes were closed; the Pacific routes were cut in two by the Japanese and the North Atlantic route closed down by winter. The South Atlantic route suddenly became almost the only air lane available to the Allies.¹⁶² In fact, the first heavy bombers, sent to aid General Douglas MacArthur in the Philippines, left from Sacramento, California, but had to fly the long way around via the South Atlantic.¹⁶³ Its importance was acknowledged at the ARCADIA conference in December 1941, when protection of this air route was made a major item on the conference agenda.¹⁶⁴ Fortunately, by this time the South Atlantic route was well established,

¹⁶⁰ Pan American History: World War II: War time activities and experiences. Page 48, folder# 21, box #15, PAA Archives.

¹⁶¹ Oliver, La Farge, *The Eagle in the Egg* (Cambridge, Mass: Houghton Mifflin Company, 1949), 35.

¹⁶² Conn and Fairchild, 303-304.

¹⁶³ La Farge, 35.

¹⁶⁴ Craven and Cate, 356.

and it became and remained for several years the air lane most heavily used for air transport.¹⁶⁵

That all of the bases originally selected did not continue to be useful during the entire war, or that “mistakes were made” in some of the planning, cannot be denied. For instance, it was thought that Lighter Than Air craft (LTA’s) would be useful in anti-submarine warfare, and for this reason LTA bases were constructed at Igarape Assu and on the island of Fernando de Noronha in Brazil. Special landing mats were built for the accommodation of these aircraft. But the attempt to employ blimps against submarines was unsuccessful, and subsequently described by some as “a bit of a fiasco.”¹⁶⁶ It was discovered that the blimps could do little more than locate and report the position of U-boats. When they were close enough to a U-boat to do this, they were very likely to be shot down by the submarine’s deck gun. As convoy protection, they were less than useless, for the large, slow blimps could be easily spotted by submarines, revealing the location of the convoyed ships.¹⁶⁷

The United States government’s decision to utilize Pan American as an agent in the Airport Development Program was sound, given that the corporation was selected only after several other proposals had been carefully investigated and discarded. General Marshall indicated the close connection between the existing Pan American airfields in Latin America and the needs of the United States when he said in 1940, “in the Caribbean theater the Pan American contract is a primary essential to the matter of British bases.”¹⁶⁸

The War Department also acknowledged the wisdom of using Pan American as the country’s “chosen instrument” in hemispheric defense. The Army’s official history asserts that after 1941 the War Department

¹⁶⁵ Conn and Fairchild, 304.

¹⁶⁶ Pelham, 53.

¹⁶⁷ Morison, 250-251.

¹⁶⁸ Conn and Fairchild, 254.

never questioned the fact that by means of the Pan American contracts, the United States Army and Navy had obtained a military airways system in Latin America more readily and more cheaply than could have been provided in any other manner.¹⁶⁹ It would therefore appear that the selection of this particular agent to undertake the important Airport Development Program for the United States was entirely correct and necessary to America's war effort.

Some of the services rendered to the ADP by the Pan American organization were:

1. Negotiations to enable ADP to enter the various countries using contracts, licenses, concessions and permits.
2. Negotiations for passage of foreign legislation regarding airport development, including such things as zoning laws. Pan American had a reputation for occasionally being more adept diplomatically at negotiating aviation matters than the State Department.¹⁷⁰
3. Handling customs related matters. PAA's representatives were frequently able to speed up action on certain items or obtain valuable concessions.
4. Expediting of material. Shipments for ADP were generally made to an already accredited Pan American office or employee.
5. Selection and exploration of airport sites, and negotiations for acquisition of lands and rights. Extensive meteorological analysis and geographical surveys were also handled by PAA.
6. Legal services to the ADP, rendered by both the corporation's New York City legal staff and by its foreign attorneys.¹⁷¹

¹⁶⁹ Conn and Fairchild, 258.

¹⁷⁰ La Farge, 74.

¹⁷¹ Samuel Pryor. Assessment: Wartime Airport Development Program, 1940-1948. Pan American Corporate document. Page 65, folder #9, box #953, PAA Archives. Pryor served as Vice President of Pan American Airways during the ADP years. His direction and supervision of the airfield construction and improvement projects attracted presidential attention, earning the medal for merit from President Truman in 1945.

Other functions and services were provided by Pan American offices. These included use of the company's private radio facilities, handling of ADP mail, use of PAA telephones, use of the company's shop facilities, and transportation of ADP personnel.¹⁷² No part of the cost of maintaining its Latin American offices, nor any part of the salaries of its regular employees, was charged to the Airport Development Program.¹⁷³

A Pan American company memorandum, written toward the end of the airfield construction work, pointed out various ways in which it was believed PAA had been able to achieve savings in the building of the bases. The memorandum noted that, in line with PAA's policy, "gratuities were not paid to expedite clearance of materials and equipment through customs."¹⁷⁴ This was most likely for PAA's own protection, with Trippe not overly enthusiastic about giving out gratuities, especially under the pressure of wartime conditions. Where American ADP employees were suspected of engaging in petty graft, they were released. The memorandum also pointed out that where a reputable local contractor could do work for less than ADP's estimated cost, he was hired; otherwise, the ADP organization did the construction work itself.¹⁷⁵

According to Juan Trippe, Pan American Airways "never has and as far as I know never will make a dollar of private profit out of the ADP contract."¹⁷⁶ Regardless of cost, the quality of the work done under the Airport Development Program must be considered. Measures of performance of the work on each base were aggregated by the Inspector General's Division of the Army at the end of 1942 with the following result:

Bases rated superior: 18.2%

¹⁷² Pryor assessment, 65.

¹⁷³ Pryor assessment, 66.

¹⁷⁴ Pryor assessment, 66.

¹⁷⁵ Pryor assessment, 67.

¹⁷⁶ Transcript of testimony, Juan Trippe, Antitrust Subcommittee Hearings, undated. Page 2, folder #15, box #499, PAA Archives

Bases rated excellent: 45.5%

Bases rated satisfactory: 36.3%

By the end of the program, the bases were rated either “superior” or “excellent” with few exceptions.¹⁷⁷

Determining the Airport Development Program’s effect on Latin American countries’ relationships with the United States is difficult. At the time the program was initiated, it was a question of balancing the urgent military needs of the United States against possible harm to the “Good Neighbor Policy.” This policy guaranteed U.S. non-intervention and non-interference in the domestic affairs of Latin American countries.¹⁷⁸ It reinforced the idea that the United States would act as a “good neighbor” and could expect reciprocal treatment in return. The covert employment of Pan American Airways to do the work of the War Department was a matter of sheer necessity in the administration’s eyes, and risk to intra-American relations was necessary. Further, it can be argued that the Roosevelt administration was doing no more than using Pan American in the same manner that Germany had been using its airlines, under Deutsche-Lufthansa, throughout South America.

Reactions to the disclosure that the United States government and the War Department were the driving forces behind the ADP project varied from country to country. Some countries were aware almost from the start that the bases were intended to be used for military purposes. Not surprisingly, these were the countries with which the United States maintained close connections. As far as these governments were concerned, the idea of building large, modern airports in their countries received a cordial response.¹⁷⁹

¹⁷⁷ Pelham report, 43.

¹⁷⁸ Donald Marquand Dozer, *Are We Good Neighbors? Three Decades of Inter-American Relations, 1930-1960*, (Gainesville, 1959), 80. Also covered in Edward O. Guerrant, *Roosevelt's Good Neighbor Policy*, (Albuquerque, 1950), 157-158.

¹⁷⁹ Pryor assessment, 50.

The Brazilian government of Getulio Vargas was always cooperative, and his administration was aware of the primary purpose of Pan American bases sometime before the United States was actually in the war. An understanding was reached with Vargas that the bases would be turned over to Brazil six months after the end of the war.¹⁸⁰ When press censorship maintained during the war by the Vargas administration was lifted in 1945, his administration came under severe criticism from a number of Brazilians for permitting the United States to construct the airfields. Some damage was also done to Pan American ticket offices by angry Brazilians when it was learned that the airline had actually built the airports for the United States Government.¹⁸¹

Brazil was the country most affected by the Airport Development Program. Some of the ports were also open to the U.S. Navy. There was a close connection between the Navy installations and the ADP bases, and it is likely that every American serviceman was thought to be from the ADP bases. Airport Development Program administrators worked continuously to create good will in the various Latin American countries, not only for the sake of the United States Government, but for Pan American Airways as well.¹⁸²

Pan American's own position as a result of the ADP work is also somewhat difficult to determine. The airline's value to the ADP rested in part upon its prestige in Latin American countries. This prestige was not only hard to establish, but hard to maintain. Pan American's reputation was somewhat tarnished, at least temporarily, in certain countries having vocal anti-American groups.

The airline did obtain some unique benefits from its part in the Airport Development Program. The most important of these were the modern airport facilities created with President Roosevelt's emergency

¹⁸⁰ Morison, 378-379.

¹⁸¹ Guerrant, 186.

¹⁸² Pryor assessment, 63.

funds. These facilities were strewn throughout important Latin American areas in which Pan American was the dominant carrier. Of almost equal commercial value to the company was the intensive and expanded training of PAA employees through the Airport Development Program.¹⁸³

One of the unintended consequences of Pan American's venture in Latin America was the fact that during the war, other domestic American lines started flying the South American and South Atlantic routes, accumulating navigational and operational experience while utilizing the air routes Pan American considered its own.¹⁸⁴ Had Pan American been able to retain exclusive control over the ADP air routes, the company would have had a material advantage in post-war commercial aviation. Encroaching even more on Pan American's Southern monopoly were the new local Latin American airlines developed under lend-lease.

Following the war, competition for commercial aviation business in Latin America was fierce. It is somewhat ironic that the ADP airports, built with United States funds by a United States airline, ended up being a means of limiting that airline's operations in Latin America. The ADP fields were all turned over to the countries in which they were built. Pan American also gave up most of its stock in the local airlines in which it once held a controlling interest, such as Panair Do Brasil.¹⁸⁵

With the arrival of the large, modern ADP airports and the expansion of their own companies through American lend-lease, Latin American nations no longer needed to rely upon the pioneering Pan American system. For example, following the war, Pan American planes were authorized to stop in only four cities in Brazil.¹⁸⁶ Furthermore, European nations also commenced or resumed aviation operations in South America, with sixty major international airlines competing there

¹⁸³ Pryor assessment, 61.

¹⁸⁴ La Farge, 35.

¹⁸⁵ Testimony of Juan Trippe, Antitrust Subcommittee Hearings, 1950-1951, PAA Archives.

¹⁸⁶ Tomlinson, 220.

following the war.¹⁸⁷ Pan American remained one of the largest international airlines, but the introduction of so much competition was surely not one of Trippe's intended consequences. The story of the Airport Development Program, therefore, is one that must be approached not from the point of view of American economic advantage, but from the standpoint of America and Pan American's contribution to the war effort.

The ADP was originally conceived as a defensive weapon for protection of the North and South American continents against German aggression. From the beginning, with the selection of Pan American Airways as an agent of the United States Government to build the bases, the program mushroomed into a primary vehicle for the conduct of the war. Defensively, the bases were of extraordinary value to the nations of the Western Hemisphere in defeating the submarine menace. In fact, it is doubtful whether this threat could have been neutralized without these bases. Protection of the vital link between the Atlantic and the Pacific in the Canal Zone was also secured by the creation and operation of the ADP bases.

Of similar importance was the use of the bases in ferrying vital war material and planes to crucial battle zones in Africa. When the lightning speed of Hitler's forces combined with the unpreparedness of the west, the result was Axis military penetration of key strategic areas, threatening the entire defensive structure of the allies. The bases permitted the "arsenal of democracy" to transport armaments to the areas where they were needed most, offering flexibility to the war plan. Supply of North Africa, Burma, the South West Pacific, and even the supply line to Russia was enabled by the shuttling of military planes and material via the ADP bases.¹⁸⁸ The bold concept of using the bases offensively, implemented by their availability to the United Kingdom even

¹⁸⁷ Edward Tomlinson, *Look Southward Uncle, A New Look at the Other 175,000,000 Americans*, (New York, 1959), 219.

¹⁸⁸ Bender, 359.

before the United States was in the war, was one of the significant developments which blocked Axis expansion while the rest of the allies generated strategic combat power.

When victory was won, the United States government acknowledged the contribution of Pan American Airways. In a letter to the president of the airline, dated September 1945, Secretary of War Stimson invited Trippe to extend the appreciation of the War Department to all employees who had participated in what he characterized as “this outstanding accomplishment.”¹⁸⁹ President Truman himself, the following spring, presented the government’s Medal for Merit to Samuel F. Pryor, who had been the top Pan American executive in the Airport Development Program. The citation stated that it was given for “extraordinary fidelity and exceptionally meritorious conduct.”¹⁹⁰

The Airport Development Program was a unique accomplishment, not only in deterring the Axis powers from invading Latin America, but also in strengthening America’s post-war defenses and in furthering the development of commercial aviation transport, which expanded significantly in the period following the war. But for the near term, the new bases of the ADP would demonstrate their utility as a foundation for offensive power projection into Africa.

¹⁸⁹ Letter from Secretary of War Stimson to Trippe, dated 3 September, 1945. Folder #31, box #252, PAA Archives.

¹⁹⁰ Citation to accompany the award of the medal for merit to Samuel F. Pryor, Jr. Folder #10, box #57, PAA Archives.

Chapter 2

Pan American Goes to War in Africa

Of all the world-girdling division and subdivision of the Pan American Systems, only Pan American Airways-Africa, Ltd., has run the complete cycle of conception, birth, development, maturity, and demise...It packed into its sixteen months of existence all the despair and delight of a hardship and accomplishment not previously experienced by any airline in so short a span...

- Voit Gilmore, PAA-Africa manager

... An organization that has created an accomplishment that is going down in military history...

Major General Harold L. George,
Commanding General, Air Transport
Command
United States Army Air Force
October 1, 1942, Miami, Florida

On 18 August 1941, the office of the President of the United States announced that Pan American would ferry lend lease planes to the Middle East, build an aerial route across the South Atlantic, and operate an air transport system across the entire continent of Africa.¹⁹¹

Sixty-one days later the first regular flight from the West Coast of Africa to Khartoum was inaugurated. Following the trans-African route of the British Overseas Airways Corporation (BOAC), Pan American Airways-Africa (PAA-A) enlarged, expanded, and equipped fourteen airfields across the midsection of the continent. Two hundred and fifty six hangars, repair shops, mess halls, dormitories, hospitals, and recreation facilities for personnel were erected in the dense jungle and sub-Saharan desert.¹⁹² Later, the route was expanded to include Iraq

¹⁹¹ The New York Times, August 19th, 1941.

¹⁹² Gilmore report, 8.

and Iran and the Western border of India. All supplies including machines, tools, houses, beds, stoves, fuel, and fresh meals were carried by truck, railroad, riverboat, camelback and airplane to the field stations. At one time, the native payroll listed 7000 men.¹⁹³ PAA men looked for alternate routes, evacuation routes, lanes of supply and communication that would remain open if Rommel's divisions were to break through to the South.¹⁹⁴

Crisis in Africa

By the spring of 1941, British troops in North Africa were facing a double threat. General Erwin Rommel was pressing the British Eighth Army against the Suez Canal with his Afrika Korps, while supplies were threatened by Axis efforts to neutralize the key island base of Malta. Were the Mediterranean to fall under Nazi control, Rommel could drastically shorten his supply lines while British lines would instantaneously increase by 4000 miles.¹⁹⁵ Like the Burma-India theater, all supplies now would have to travel around the Cape of Good Hope. Besides Gibraltar and Malta, all of Britain's sea stations were gone. Malta, a vital supply link to the Army of the Nile, suffered such devastating Axis bombing that it lay helpless for months.¹⁹⁶ Supplies were so short at one point in April 1941, British Air Marshal Arthur Tedder could sustain only 21 serviceable Hurricanes in defense of the

¹⁹³ Gilmore report, 9.

¹⁹⁴ Craven and Cate, Vol. 7, 53.

¹⁹⁵ Philip Guedalla, *Middle East, 1940-1942: A Study in Air Power*, (London, 1944), 79.

¹⁹⁶ The Mediterranean was never entirely closed to British shipping as a result of the extraordinary defense of Malta. But, while the Italian fleet ceased to be a factor in the Mediterranean after the decisive defeats inflicted by the British at Taranto and Cape Matapan, British shipping remained constantly threatened by enemy aircraft until the end of the African campaign in May, 1943.

African western desert and 14 to defend the Suez Canal and Alexandria.¹⁹⁷

An Ally in Trouble

Prime Minister Churchill diverted vital resources to give a “blood transfusion” to his embattled African force.¹⁹⁸ He used British Navy aircraft carriers HMS Furious, Ark Royal, Victorious, and Argus to transport 100 disassembled Hawker Hurricane fighters to the African theater, tying up valuable assets he desperately needed to defend the home islands. Trying to re-establish supremacy in the Mediterranean cost him airplanes as well.¹⁹⁹ Churchill, as well as Air Marshal Tedder, understood desert tank warfare was as much a battle of air bases and air superiority to attack the enemy’s airports and sea supply lines than a series of tank on tank engagements.²⁰⁰

The Takoradi Route

The only viable alternative proposed by British military planners was the resurrection of the Takoradi route from West Africa to Egypt.²⁰¹ After World War I the British Royal Air Force began a series of experimental flights designed to establish the possibilities of an air route to connect the United Kingdom with Egypt, the Sudan, and, eventually, the Union of South Africa. This program progressed gradually with the

¹⁹⁷ Ian Stanley Ord Playfair, *The Mediterranean and Middle East* (London: H.M. Stationery, 1954), 229. Shortage of planes also covered by Tedder himself in his book *With Prejudice*, 77.

¹⁹⁸ Winston Churchill, *Their Finest Hour*, (Boston: Published in Association with the Cooperation Pub. [by] Houghton Mifflin, 1949), 453.

¹⁹⁹ Winston Churchill, *The Grand Alliance*, (Boston: Houghton Mifflin, 1950), 494.

²⁰⁰ Air Marshal Arthur Tedder, G.C.B., *Air Power in War*, (London, 1947), 79.

²⁰¹ British Air Ministry, *Merchant Airmen*, (London, 1946), 61-62.

governments of Egypt and the Sudan assisting by providing landing fields, and by 1927 a full squadron was stationed in Khartoum.²⁰²

Throughout the 1930s the RAF pioneered the route, laying the groundwork for the establishment of commercial airline operations. Imperial Airways, Ltd. became the British “chosen instrument” for most African services.²⁰³ Under Imperial, a weekly service from London to Cape Town, via Cairo and Khartoum, was inaugurated on January 30, 1933. By the end of 1934 this London-Cape Town operation increased to twice weekly in each direction. Thus, the Cairo-Khartoum meeting of the London-Cape Town route became the first link in the later Trans-African route.²⁰⁴

In 1936 Imperial began services westward from Khartoum, following the earlier RAF survey routes. This Imperial service first connected Khartoum with Kano, in northern Nigeria, on February 3, 1936, and was extended south from Kano to Lagos on October 20, 1936.²⁰⁵

The following year the Imperial Khartoum-Lagos service was further extended westward from Lagos to Accra, Gold Coast. The operator for this Lagos-Accra service was Elder’s Colonial Airways, Ltd., an associated company of Imperial Airways. Elder’s Colonial later extended its Lagos-Accra service to Takoradi. By the end of 1937, therefore, the Gold Coast was connected to the United Kingdom, via this trans-African Elder’s-Imperial operation, which joined the main Cape Town-Cairo airline at Khartoum.²⁰⁶

In July, 1938, the British Air Ministry began a survey of French West Africa, with a view to joining the Bathurst-Freetown service to the

²⁰² “Twenty-five years of pioneering, the story of British Air Transport.” British Air Ministry release, un-dated. Page 1, folder #13, box #43, PAA Archives.

²⁰³ Story of British Air Transport, 20.

²⁰⁴ Annual Report on the Progress of Civil Aviation, Air Ministry, directorate Civil Aviation, London, 1938, p. 6. Page 3, folder #13, box #43, PAA Archives.

²⁰⁵ Annual Air Ministry report, 3.

²⁰⁶ Annual Air Ministry report, 16.

existing Gold Coast-Nigerian-Sudan route. The commencement of hostilities in Europe in 1939 interrupted this survey progress before completion, with the Bathurst-Accra link later established as a wartime measure.²⁰⁷

Despite transiting between dissimilar lands, cultures, and airlines, the newly established route also presented significant environmental and material obstacles. The trans-African route westward from Khartoum passed over the high, rocky desert of Kordofan and Darfur, extending west into French Equatorial Africa, where the desert steppe becomes the open savannah of Chad. Tropical forests began in northern Nigeria, and became more dense as the route continued south.

Landing fields were widely separated and usually connected by roads that were impassable during the rainy season. Facilities for aircraft maintenance and repair did not exist; each airplane had to be as self-sufficient as possible, carrying spare parts and a flight engineer on each flight. Major repair jobs caused delays in flight operations until sufficient replacement parts could be supplied.²⁰⁸ Besides these maintenance difficulties, communications facilities were non-existent. Direction finding and beaconing equipment was uncommon, and there was no radio-telephone communication equipment readily available. Pilots and crews had to depend on dead reckoning navigation by visual checkpoints which were often few and far between and difficult to identify because of terrain similarities.²⁰⁹

Meteorological services developed slowly despite lobbying from the various local government authorities along the route. However, not for several years after route operations began was anything like an airlines forecasting service available. While route weather was stable for most of the year, there were occasional weather situations which presented

²⁰⁷ Annual Air Ministry report, 17-18.

²⁰⁸ Annual Air Ministry report, 26.

²⁰⁹ Route communications were still unsatisfactory as late as the spring of 1942, and the dependence of pilots upon dead reckoning navigation continued until early summer, 1942.

difficulties, particularly in reduced visibility for landings due to “hermattans”, “haboobs”, and similar sandstorms. Mist often hung over the valleys, furious electrical storms along the coast threatened onboard instrumentation, and inland thunderstorms rapidly turned sun-baked flats into lakes, often quintupling in size, further complicating already complex, overland resupply operations.²¹⁰

These substantial operational handicaps - lack of adequate maintenance, communications, and meteorological facilities - were duly noted by early RAF surveys and subsequent Imperial operations.²¹¹ Local government authorities, particularly in the Sudan and Nigeria, encouraged and assisted the work of both the RAF and Imperial, but it was not until after the trans-African route became of strategic military importance that sufficient maintenance, communications, and meteorological facilities were developed to support airline operations in considerable volume. The pressing needs of war greatly accelerated route development, but the start had been made years before.

Sometime in the winter of 1940, Churchill directed the RAF to resurrect the route, and he sent a group to improve the bases, airways, and communications system. The results were less than impressive. By the end of the year, the Takoradi route took seven full days to fly, and the British had only successfully moved 100 airplanes into Egypt since its opening, losing 20 percent of the aircraft during transit.²¹² Air Marshal Tedder was intimately familiar with the danger of the underdeveloped route. While surveying its feasibility during a flight from Accra to Cairo in December of 1940, Tedder observed:

“Before we took off from Takoradi, our pilot briefed me about the route and emphasized the necessary dependence on [Direction Finding], particularly on the stretch between

²¹⁰ Gilmore report, 2.

²¹¹ Annual Air Ministry report, 20.

²¹² Gilmore report, 2.

Fort Lamy and El Fasher. He said that without D.F. that particular leg was a gamble, and I was now able to see from the air how true that statement was. Near seven hundred miles of sheer nothingness; brown country, streaked with dry watercourses and dotted with bush; maps absolutely useless; nothing shown on them for the most part, for two hundred miles at a stretch, and where something shown, it was obviously incorrect. I must say, I would have hated to have to do that trip without wireless...²¹³

Bitter disputes surfaced in London concerning the management of the route. Too many airplanes were littering the route instead of arriving in Cairo to join Tedder in the fight against the Afrika Korps. In April 1941, Churchill himself weighed in on the matter, exclaiming that the route “must be opened and relieved of its congestion.”²¹⁴

President Roosevelt faced a similar dilemma at the beginning of 1941. How could he supply the British without violating the law, antagonizing leaders in Congress, and alarming the American people? How could he ferry war material into an officially proclaimed “war zone” without breaking the existing neutrality legislation? How would this not be seen as coming dangerously close to outright military resupply on behalf of a belligerent nation? The President had effectively painted himself into a corner when he proclaimed neutrality in November 1939, specifically prohibiting the United States from taking sides in the nascent European war and specifically defining the United Kingdom a “war zone.” Further, how could he justify to the American people conducting military resupply operations on the other side of the Atlantic during peacetime? The country was decidedly isolationist, and such warmongering would not help him or his party in the next election.

Though the country was at peace, and the President was publicly opposed to getting involved in another continental war, he was secretly

²¹³ Air Marshall Arthur Tedder, G.C.B., *With Prejudice: The War memoirs of Marshal of the Royal Air Force* (Boston, 1967), 36.

²¹⁴ Playfair, 230.

posturing the United States to support the British militarily in Africa and defend against Axis incursion into the Western Hemisphere. To avoid accusations of collaborating with a belligerent nation, Roosevelt and Churchill had to convey their intentions through intermediaries, often through the President's advisor, Harry Hopkins. "Leaving today with President," Hopkins would inform Churchill, "appropriations bill should pass soon...moving rapidly to get materials required [to] Middle East. President well."²¹⁵

Similarly, the inter-state military contact had to be kept secret. On several occasions beginning January 1941, the British chiefs of staff met secretly in Washington with their American counterparts to agree on mutual military objectives. These meetings lasted for four months, with British military leaders dressed in civilian clothes at the War Department to prevent drawing the ire of American isolationists.²¹⁶ The President and the military were determined to help the British even if it meant skirting the neutrality laws.

In March of 1941, the military's desire to aid Great Britain received a helpful boost. The Lend-Lease Act allowed the United States to begin building and distributing a vast "arsenal of democracy" to her friends and allies. Two provisions of the act, however, were problematic. First, the act could only provide "credit" for weapons to foreign countries, meaning the United States couldn't deposit the goods on Britain's doorstep. A percentage of airplanes rolling off the assembly lines were merely apportioned for allies, and no real plans were authorized to deliver the weapons to the areas where they were needed most. The second restraint of lend-lease, pursuant to the Neutrality Act of 1939, prohibited

²¹⁵ Telgram, Hopkins to Churchill, March 19th, 1941. State Department, European War files, 1940-1943, National Archives.

²¹⁶ Mark S. Watson, U.S. Army in World War II, The War Department, Chief of Staff: Prewar Plans and Preparations, (Washington, D.C., 1950), 385.

the United States from distributing weapons paid for with lend-lease money to “war zones” on merchant vessels.²¹⁷

The final legal barrier was the Selective Service Act. The current form of the bill prohibited deploying the armed forces past the western hemisphere. Originally passed in 1940, the act was up for renewal and Roosevelt was desperate to include a provision that would allow U.S. draftees to serve elsewhere in the world, creating an opportunity to provide direct military support to the British in Africa.²¹⁸ The uproar from the public and Congress over this provision, however, forced the President to revert to the original form, and it barely passed by a single vote in the House after two months of strenuous debate.²¹⁹ The President now had the means by which to supply Britain to defend herself in Africa, but no way to get material to the war zone and no one to transport it without violating the Selective Service Act. He solved the first problem by using his lawyers to find a loophole in the Neutrality Act, allowing the definition of “United Kingdom” to mean just the British Isles, not African countries under colonial jurisdiction.²²⁰ This way, British colonies along the Takoradi route would be neutral, making the route neutral. He solved the second problem by using Pan American as his “chosen instrument” to ferry material to Africa on behalf of the government. To avoid the second legal restraint of the Lend-Lease act, the United States bought Pan American aircraft and equipment, then

²¹⁷ Memorandum, “Neutrality Act of 1939,” Cox to Stettinius, Sept. 23, 1941. Lend-lease administration, General File, Office of General Counsel. U.S. National Archives. Oscar Cox was chief counsel of the lend-lease administration and Ed Stettinius was Secretary of State under Roosevelt and Truman as well as Juan Trippe’s brother-in-law.

²¹⁸ Though not explicit regarding his desire to project power, his use of Pan American in a force projection role reveals his ambition to export United States military might overseas for the purpose of alliance building.

²¹⁹ Wikipedia entry for “Selective Service Act of 1940.”

http://en.wikipedia.org/wiki/Selective_Training_and_Service_Act_of_1940.

²²⁰ Proclamation of the President of the United States: “Modification of a Combat Area,” Apr. 11, 1941. State Department, European War files, 1940-1943, National Archives.

sold it back to the company to operate for one dollar.²²¹ Pan American formed two subsidiaries to perform the task, Pan American-Africa (PAA-A) and Pan American Air Ferries (PAAF). These two Pan Am subsidiaries were no longer a private merchant corporation but, in the eyes of the law, a para-military organization.²²²

With legal barriers at least temporary curtailed, and a new para-military organization in the form of Pan American-Africa ready to provide its services, a sense of urgency gripped the U.S. government. U.S. ambassador and special advisor to the British Prime Minister, W. Averell Harriman, implored Hopkins to speed the transport of material across the route with the same priority and urgency as military operations.²²³ General Arnold similarly urged the President to rush planes across the Takoradi to feed Air Marshal Tedder's supply-hungry forces.²²⁴

On June 6th, General Arnold held a meeting at the War Department to discuss the urgency of getting Pan American into action in Africa. The meeting was comprised of Army Air Forces leaders, the British Air Commission, Trippe, and a few other Pan American officials.²²⁵ Arnold wasted no time informing the attendees that the Roosevelt administration directed transport and ferry operations to commence immediately, "regardless of the question of finance." The administration believed Rommel's army to be a grave threat to the allies, and considered delivery of planes to the continent as the "most urgent problem confronting the British."²²⁶ Arnold informed Trippe during this meeting that the British wanted as much help from Pan American as

²²¹ Pan American Air Ferries and Pan American, Africa, Ltd. history. Page 17, Folder #3, box #22, PAA Archives.

²²² Though not officially recognized as such by law, PAA Africa and Air Ferries carried out traditional military functions in both neutral (Liberia) and belligerent (Egypt) countries, thus operating above the law as a pseudo-belligerent non-state actor.

²²³ Telegram, Harriman to Hopkins, Apr. 18, 1941. Hopkins file, State Department, European War files, 1940-1943, National Archives.

²²⁴ Harriman telegram.

²²⁵ Plans for PAA service, June 28, 1941. Memorandum from General Clayton Bissell to General Arnold, , General H. "Hap" Arnold file, folder #13, box #27, PAA Archives.

²²⁶ Arnold memorandum.

possible and were willing to have PAA take over the Takoradi route in its entirety. Further, the British were willing to have Pan American provide all “pilots, mechanics, installations, radio, and everything else.”²²⁷ It was tentatively agreed upon at this meeting that the route should be laid out from New York via Bermuda, Puerto Rico, Belam and Natal, Brazil to some point of arrival on the West African coast. Trippe was concerned about the “some point of arrival.” If Pan American was charged with flying all the way to Cairo, wouldn’t that be flying into a war zone? Wouldn’t that be seen as President Roosevelt using Pan American to violate the U.S. neutrality laws? This matter, according to Arnold, would have to be “worked out” later.²²⁸

General Hap Arnold was determined to make the route work. He understood the British wanted PAA’s help as much as possible on the trans-African route, and they were willing to have the airline take it over completely. Following Arnold’s meeting with Trippe on June 6th, Pan American entered into a series of discussions leading to the airline’s assumption of responsibility for the operation of Great Britain’s trans-African air route.²²⁹ The company formed a new subsidiary, Atlantic Airways, to ferry an assortment of planes across the South Atlantic to Dakar.²³⁰ To get around the neutrality legalities, the aircraft were controlled by Pan Am or Army Air Forces pilots under the personal direction of General Arnold until the “point of ultimate take off” where an RAF or British civilian pilot would take over.²³¹ This point was originally determined to be Miami, but as the following vignette from the official Pan American Air Ferries history will point out, this course proved problematic.

²²⁷ Arnold memorandum.

²²⁸ Arnold memorandum.

²²⁹ Edward R. Stettinius, Jr., *Lend-Lease: Weapon for Victory*, (New York: The Macmillan Company, 1944), 147.

²³⁰ Bender, 348.

²³¹ Bender, 348.

In late May, 1941, Pan American Air Ferries, known as Atlantic Airways, was slowly forming to become part of the air transportation system developed by the United States Army Air Transport Command under the guidance of Major General Harold L. George, Commanding General of the Air Transport Command. As Army Air Forces men and materiel began converging on Miami, General George inferred anything having to do with oceanic flight would involve Juan Trippe. Somewhat resentful that General Arnold had not "read in" the Commanding General, General George called Trippe to inquire into the nature of the organization and find out who was in charge.

"An organization known as Atlantic Airways has been formed," Trippe replied. "John Steele, I think you know him, is in charge. I understand he will be in to see you tomorrow morning and that he has ten crews ready to take your ships overseas just as soon as the planes are ready to go."

At the same time, the pilots who had been recruited were arriving in Miami loaded with questions. "Where is Atlantic Airways? Who is Atlantic Airways? What is it all about? Who is in charge?" Everyone seemed to be very "hush-hush" and even those familiar with the situation appeared to know nothing.

The following morning, John Steele met General George and together went to Miami to start organizing what seemed to be a haphazard assemblage of forces. Pointing to a group of old airplanes in the corner of Miami field, Steele asked one of the mechanics "what do you know about these old planes?"

"A couple of days ago, last Sunday, May 25th, a bunch of pilots flew these old crates in here and they have been under guard ever since. We asked them what they were for and they told us they were going 'overseas.' All we could think of was, 'what the hell do they want to send this junk over for, and how can we get these ships in any condition to go?' They have been here for several days and as far as I know have not been touched or taken care of. They are certainly the biggest collection of ragged equipment ever gathered together for any one job, but somehow or other, if they have to go, we will get them ready."

Down the flight line, the two men observed pilots both uniformed and civilian, British and American, crammed into a flight operations building haggling over which way to fly to Brazil. The British wanted to go to San Juan while the Americans were keen on flying there directly. "What difference does it make which way we go," lamented one

American crew member, "just as long as we get there!" In the corner of the smoke filled room, a radio crackled to life just as the crews were about to depart, silencing the room instantly. The local radio broadcast flashed "Germany has invaded Russia. Dive bombers are attacking Russian troops and parachute troops have been dropped in the rear." Within thirty-one minutes of the broadcast, ten heavily loaded planes full of lend-lease equipment headed south to Brazil.²³²

Immediately upon arrival in Natal, all ten crews were interned by Brazilian authorities unwilling to risk Axis attack and their neutrality status. After all, the field where the crews landed was used by both Italian and German aircrews, some of which had been trained by the Luftwaffe. Guards were placed around the planes and the crews were detained for three days while Pan American officials with close Brazilian contacts negotiated their release. The ten airplanes finally left for Africa four days after arriving in Brazil.

An hour into the flight across the South Atlantic, one of the ten aircraft had to turn back for the Brazilian coast after experiencing engine problems and losing control of the landing gear. On approach to the Natal field, Pan American pilots Jim Allison and Charlie Flanagan noticed all the landing lights had been turned out and no one was manning the flight-following radios. After several unanswered mayday calls and five unsuccessful attempts to land, the pilots finally landed using the illumination from inside the Air France hangar as a reference point. Upon inspection of the aircraft, the crew determined the Italians had loosened the spark plugs to finger tightness in one engine to cause a slow compression loss and ultimate engine failure in the middle of the Atlantic Ocean. Additionally, the hydraulic system was tampered with to cause the gear to prematurely drop, but not lock, making it impossible to land. The crew remedied the situation by conducting aerobatic maneuvers to lock the gear into place using gravitational force. The Brazilian airfield traffic control personnel were tricked into leaving their posts by Italian agents posing as Pan American officials and declaring "all is well," the indication that airfield services would no longer be needed.²³³

²³² Air Ferries History, 3.

²³³ Air Ferries History, 4.

The confusion and low level sabotage were the unintended consequences of President Roosevelt's grand vision for aiding British military forces in Africa. On August 29th, 1941, following Churchill's pleas to Roosevelt following a secret meeting at Argentia, The New York Times reported:

"President Roosevelt announced today that American civilian pilots would ferry United States war planes from this country to British Forces in the Near East under arrangement permitting United States operation of air fields in Africa...The executive disclosed that it had been arranged for Pan American Airways to ferry aircraft from this country to West Africa and thence to the Near East and to operate a supplementary air transport service to carry spare airplane parts to the British and return ferry pilots to this side of the ocean."²³⁴

To work around the Neutrality Law of 1939, namely section 2(a) which prohibited American merchant vessels from entering combat zones, the administration's lawyers had to think creatively. Merchant vessels couldn't enter, but government owned, non-military vessels from neutral countries could. The Selective Service Act prevented United States service members from manning the equipment, but civilians and military personnel on authorized leaves of absence were permitted to fly. Therefore, the United States purchased one Pan Am Boeing 314 clipper then leased it back to the company for one dollar.²³⁵ This way, the U.S. government could fly its own planes into Cairo and avoid violating the neutrality act. All the DC-3's Pan American-Africa initially used to start the Takoradi route system were purchased by the government from various airlines and then leased to Pan American for operation.

Only sixty-one days after the New York Times announcement of the PAA-Africa effort, a Pan American transport aircraft and crew carried the

²³⁴ The New York Times, August 19, 1941.

²³⁵ Pan American Airways - General Information, 1930-1940. Page 15, folder #6, box #21, Richard K. Smith papers, Auburn University Special collections.

first shipment of war supplies across the continent to the British military in Egypt.²³⁶ Without waiting for the neutrality laws to be analyzed or a formal agreement with Great Britain, Pan American-Africa set out to make President Roosevelt and Juan Trippe's vision a reality. Through its work on the Airport Development Program and airfield construction efforts in the Pacific, the airline was already experienced in much of the work that lay ahead. Pan American employees were used to being short on funds to construct new airfields and resorted to scavenging, scrounging, and persuading people to help before embarking on their missions. Airline officials picked up equipment from airports all over the United States and sent it "in pieces to the African Jungle. The mayor of New York even sent earth rollers and graders on ships to help with the effort."²³⁷

Pan American-Africa was tasked to perform five broad categories of military air transport:²³⁸

1. Transport military supplies, mail and passengers to Cairo, supply center of the Western Desert War.
2. Transport military supplies, mail and passengers to India, for delivery to war fronts in Burma and China.
3. Transport military supplies, mail and passengers to Tehran, supply center of Russian War.
4. Transport RAF and PAA-Ferries pilots, who had delivered operational aircraft to the Middle East and Cairo back to Accra and Takoradi.
5. Transport priority mail and passengers from India, Iran and Egypt back to Lagos and Accra (and later Fisherman's Lake, Liberia) for connection with trans-Atlantic aircraft.

²³⁶ Gilmore report, 8.

²³⁷ Stettinius, 148.

²³⁸ Pan American Airways Corporate History: World War II Africa, 1943. Page 56, folder #6, box #259, PAA Archives.

The Company sent Franklin Gledhill, Vice-President of purchasing, to spearhead the effort. As PAA-Africa paramilitary “commander,” Gledhill was responsible for conceptualizing the major tasks, gathering information on what infrastructure could be salvaged, modified, or built from scratch, and establishing a system of operations and procedures that would make the largely defunct Takoradi route a robust line of communication. Without any institutional knowledge of this part of the world, Gledhill and his team of planners used Africa handbooks, Encyclopedia Britannica, AAF materials, personal observations, and RAF anecdotal information to piece together the scope of the problem of revitalization.²³⁹

The size of the job facing Pan American was enormous. The route was refurbished, or constructed in some places, to accommodate a more modern air inventory than what existed in 1925 when the route was established. Most commercial platforms that traversed the route in the twenties and thirties were flying boats or seaplanes, utilizing the intermittent bodies of water along the way based on the weather. Runways thus fell into disrepair. Aircraft now were wheeled, heavy, longer range and more complex. Payload and gross weight affected the route of transports. The DC-3 was the workhorse of the stable. Ranging 1200 miles with a three-ton payload, this was one of the few aircraft able to span the South Atlantic gap to Liberia. The DC-4, or C-54 Skymaster, could carry 14,000 pounds from El Fasher to Khartoum but would have to lighten to 11,000 pounds to make the South Atlantic hop.²⁴⁰ The fighters, both American and British, had considerably shorter ranges and were shipped to Accra for assembly and onward movement. Runways would have to undergo considerable lengthening and structural improvement to accommodate medium bombers. New buildings and

²³⁹ Gledhill, Mr. Vice President notes. Folder #4, box #97, PAA Archives. Mr. Gledhill kept extensive notes from his over 1000 hours logged while standing up PAA-Africa.

²⁴⁰ Corporate history, 57.

facilities were needed for storing large amounts of fuel, oil, spare parts and transit crews. The construction and supply efforts would need additional infrastructure just to support the heavy equipment traveling to the work site. Local labor would be needed for each site as well as local political will from both colonial officials and native stakeholders. Finally, all of this had to be done while operating a functioning, war-time supply route. Altogether, about thirteen hundred Pan American employees went to Africa to take part in the buildup of this important route.²⁴¹ If these 1300 Pan American-Africans had taken everything they would eventually need for the 16 months of PAA-A's existence in one bundle, it would have weighed 12,620,000 pounds. They were shipped in 292,802 packages, ranging in weight from one ounce to fifteen tons.²⁴²

The S.S. Acadia, the first ship to carry the new Pan American force, made its way to Africa on 9 October 1941. After slipping out of the Hudson River, the Acadia assumed standard anti-submarine posture. The one hundred and ninety five Pan American passengers used blackout curtains, refrained from smoking in the open, and sat in rapt anticipation of either submarine attack or arrival in what would be their new home for the next year and a half. Hitler, fortunately for them, had other plans for his submarines and was still somewhat reluctant to confront U.S. warships. This all changed after Pearl Harbor when all American ships, civilian or otherwise, were targeted by the Kriegsmarine. Of the two thousand transatlantic crossings made by PAA-Africa personnel, only one ship was sunk and two lives lost.²⁴³

Of the thousands of different types of items needed to improve and increase capacity along the route, the bulk needed to travel by ship across U-boat-infested sea lanes, offloaded far from the African coast because of lack of deep port access, ferried to shore, loaded onto narrow-

²⁴¹ Gilmore report, 11.

²⁴² Gilmore, 21.

²⁴³ Gilmore report, 6. SS *Otho* was sunk by German U-boats

gauge railroads, and transported to mostly interior airfields. Most supplies to Accra, on the Gold Coast, and Fort Lamy, Chad could be barged close to the fields. Other stations like Khartoum and Geneina, Sudan, and Maiduguri, Nigeria, would receive their bulk supplies and equipment on the Takoradi ground support route, which after Kano turned into inhospitable African jungle and tortuous desert. Some village streets were so narrow it was necessary to build arterial access roads to permit large earth-moving equipment to get around structural choke points. Sometimes terrain and vegetation rendered vehicles useless.²⁴⁴ In some desert airfields, camels brought in the bulk of supplies. At El Fasher, Sudan, this was the primary method of fuel re-supply. To fuel one B-24 at this remote base, it took one hundred camels a full month to transport 2,500 gallons of fuel from Khartoum.²⁴⁵ These remote areas of Africa were not only difficult to access and operate in, they were difficult to maintain a healthy working or fighting force in as well. Unsurprisingly, the scourge of malaria threatened the vital operation of the Takoradi route.

Medical Innovations

Concerned with malaria, Pan American-Africa had taken every precaution to protect its employees using preventative medicine and measures such as facility screens and individual mosquito nets at bases. The rapid influx of new personnel, however, made it difficult to prevent the disease completely. On 23 November 23 1941 two cases cropped up on the Gold Coast. The next three days there were two more cases than each previous day.²⁴⁶ By the end of 1941 about forty percent of the headquarters at Accra was sick. Pan American responded to the

²⁴⁴ Corporate history, 44.

²⁴⁵ La Farge, 26.

²⁴⁶ Whiteman to Van Dusen, Nov27, 1941. File 50.22.00/Van Dusen, William. Folder #5, box #31, PAA Archives. Bill Whiteman headed the medical team for PAA-Africa.

epidemic by sending their expert on infectious diseases to head up an expanded medical department for PAA-Africa. Hundreds of yards of screening were rushed to the coast and the medical team supervised hourly spraying of facilities and bodies of water.²⁴⁷

PAA, like maritime carriers, soon realized the threat tropical diseases posed to the health and welfare of their crews, service personnel, and passengers. Unlike maritime carriers, Pan American owned Boeing 314 flying boats which were ideal for quickly conveying vaccines, drugs, and medical personnel to areas in need. Similarly, these boats were able to provide rapid transport for blood, tissue, and other biological material in the other direction for rapid analysis at PAA research laboratories.²⁴⁸ *Anopheles gambiae*, a complex of at least seven different species of mosquitoes, and one of the most efficient vectors of malaria in sub-Saharan Africa, had been eradicated in Brazil by 1940.²⁴⁹ By 1942, with the increased volume of traffic between the continents, increasing numbers of specimens were discovered on westbound PAA aircraft, threatening a second colonization of the New World. Specifically, 230 wheeled aircraft and 16 of the 831 PAA flying boat sorties from West Africa to Brazil between October 1941 to December 1945 contained specimens of *A. gambiae*.²⁵⁰

The reintroduction of a lethal malaria vector in the Western Hemisphere was of grave concern to the War Department. Secretary of War Stimson communicated with Secretary of State Hull in 1942 to voice his concern regarding this potential epidemic and its possible effect on the alliance. The War Department determined the current program of spraying a mixture of pyrethrum, carbon tetrachloride, and kerosene at takeoff and landing had some benefit, but was overall ineffective in

²⁴⁷ Van Dusen letter.

²⁴⁸ Contributions of American Industry in Tropical Medicine, vol 4, no. 6 (Franz, 1968), 2.

²⁴⁹ Walter Reed Institute of Research website.

²⁵⁰ Luther S. West, PhD. Medical Department, United States Army preventative medicine in World War II, volume VI, communicable diseases, Malaria, 133..

protecting Brazilian ports. Additionally, the creation of mile wide control zones, areas treated with chemical pesticides to eradicate the mosquitoes, surrounding key West African airfields were also largely futile.²⁵¹

PAA-Africa LTD. led a group of War Department officers and malariologists to determine more effective measures for preventing the recolonization of *A. gambiae* in South America. The joint PAA-War Department task force determined the mile-wide control zone was based on an invalid assumption. The U.S. Army authorities in West Africa assumed that *A. gambiae* had an effective flight range of no more than one mile. Though biologically accurate, PAA officials determined the essential factor in the dispersal of *A. gambiae* was not the mosquito's flight range, but the influence of prevailing winds, necessitating extending the control zone to a more effective five miles.²⁵²

The degree of difficulty in implementing these enhanced measures at key West African airfields varied mostly with terrain. In Liberia, the airfield was located in a jungle clearing close to the indigenous population, forcing PAA-War Department officials to rely on local malaria discipline. In Senegal, the airfield was more remote and could be moved to an area where more effective controls could be implemented. Accra, on the other hand, had to rely on a complex system of drainage ditches to stem the high volume of mosquitoes flowing eastward from the Densu Delta. These measures, due largely to the expertise of PAA officials, resulted in the complete satisfaction of Brazilian officials, protecting both the health of allied troops in Africa and the integrity of the Pan American alliance. Malaria was never eradicated from Accra, but the Pan American headquarters and military personnel were protected. By the end of 1942,

²⁵¹ Letter from Secretary Stimson to Secretary Hull, 1942, Folder 00119954, Air Force Historical Research Agency (HRA).

²⁵² Stimson letter.

of the 2,600 PAA-A and Army Air Corps men at Accra, there were only six cases of malaria compared to ninety a year prior.²⁵³

Protecting the force from tropical diseases was necessary to operate the Takoradi route effectively, but supplying an ally with men and machines to counter a battle-tested German Army was the true test of Pan Am's worth in Africa. Its personnel would get to demonstrate their value after being on the ground in Africa for only a month.

Operation of the Takoradi Route

On 18 November, 1941, General Sir Claude Auchinleck, the British Commander in Chief of the Middle East, directed the Eighth Army to seize the initiative from Rommel's Afrika Korps, firmly entrenched in Libya and threatening to move further east. With six hundred serviceable airplanes and twenty-four new Liberator bombers from the U.S. Lend lease program, Auchinleck pushed Rommel back to Tripoli, regaining freedom of action after being pinned against the Suez Canal, but increasing his supply needs as well. The swift strikes of coordinated British air and ground operations knocked the Axis powers off balance. Both German foot soldiers and Rommel knew something had changed when they started seeing many more British than German planes overhead.²⁵⁴

This momentum, however, didn't last long. Britain's supply problems were mounting as Rommel launched a counter offensive, dubbed Operation "Hercules," a combined arms thrust back toward Cairo and the Suez Canal. Rommel implored Hitler for more support, a call previously unheeded by the Führer as he focused his attention and state resources on securing his Eastern flank. This time, however, Rommel got the support he was looking for. Hitler provided Rommel with

²⁵³ Gilmore report, 12-16.

²⁵⁴ La Farge, 85.

all the fresh ground troops and air support the Luftwaffe could provide.²⁵⁵ Seizing Tobruk on June 20th, the newly minted Field-Marshal continued his press eastward into Egypt, only to culminate short of the Nile at El Alamein in July. At this point, Air Marshal Tedder more than doubled the amount of air sorties against Rommel's forces, taking advantage of the lull in action to build up for the second battle of El Alamein.²⁵⁶ It would be during this second battle that Trippe's Pan American Airways-Africa would prove their worth.

As the build up to the second battle of El Alamein progressed, Auchinleck and the Eighth Army realized they were critically low on anti-tank shell fuses. Without these fuses and the anti-tank weapons that require them, British forces would barely stand a chance against a massed German armored attack. On July 2, three thousand miles away at the port of Lagos, the critically needed fuses were being unloaded onto docks. At PAA Africa headquarters at Accra, ATC Colonels Byerly and Kemp along with PAA officials Kraigher and Khristopherson sprang into action. The message to prepare for another long night of flying reached the pilots and crews at two o'clock in the morning. As fast as the Pan American-Africa DC-3's were flown into Accra, they were downloaded, refueled and readied for the trip to Lagos as the groggy crews received final briefings and instructions. None were too keen to fly highly combustible tank shell fuses across a dangerous route at night, but all knew the gravity of the situation and the implications of a German route in Egypt. One by one, Pan American DC-3s began descending at the Lagos airport to load their critical cargo. As the aircraft departed north along the route, a severe electrical storm threw many of the aircraft off course, hampering communications and navigation efforts. One aircraft was forced down near Fort Lamy, French Equatorial Africa, creating an additional recovery operation in the midst of the larger supply crisis.

²⁵⁵ Churchill, *The Grand Alliance*, 660.

²⁵⁶ La Farge, 85.

Additional tools and personnel had to be trucked to the downed aircraft where crew members and local villagers began clearing a hasty landing strip. A second DC-3 was then able to land and cross load the tank shell fuses from the lame aircraft and continue on to the front. In the end, fifteen tons of tank fuses were trans-loaded onto PAA-Africa aircraft and ferried to the front at El Alamein almost as the Germans moved into position to attack.²⁵⁷

Many experts claim the British Eighth Army's success at El Alamein was due in no small part to the presence and pressure of allied air support. British historian Philip Guedalla supports this claim and emphasizes the difficulty of sustaining a major air offensive in a desert warfare environment. It was not unusual for an aircraft to accumulate as much as twenty pounds of sand after flying for only 100 miles, only a small fraction of which was needed to put an engine completely out of commission.²⁵⁸ Sand filters became a critical resource, and vulnerability, to both allied and Axis forces operating machinery in the inhospitable climates of North and Central Africa. Guedalla writes in his account of the battles:

“Aircraft maintenance in Egypt, where the Industrial Revolution had not yet arrived, was a more exacting problem [than in more advanced countries]. There was no aircraft industry in the Nile Valley...For Egypt was, from the supply point of view, an island, and what was worse, it was for most industrial purposes, a desert island.” For the constant flow of aircraft to the allied front in Africa, Guedalla credits the Takoradi route which “fed new aircraft to [Tedder's] hungry squadrons, bringing 1455 new aircraft to the front lines in seven months in 1942.”²⁵⁹

²⁵⁷ La Farge, 86.

²⁵⁸ Guedalla, 194.

²⁵⁹ Guedalla, 192.

Guedalla dramatically concluded "Victory in Egypt came by the Takoradi route."²⁶⁰ After the attack on Pearl Harbor and the battles of El Alamein, activity on the Takoradi route burgeoned. Increased amounts of planes began rolling off American assembly lines destined for the Pacific, African, and Far Eastern theaters. "Every night at Accra the sun sets on at least twenty planes," wrote a PAA-African official in 1942. These include "...seven or eight Douglasses, probably a Grumman, P-40's, a couple of B-25's, a Blenheim, maybe a Hurricane, etc."²⁶¹ Increased activity on the route during this time was also a result of the decision of the Air Force Ferrying Command to shut down its Northern Atlantic routes due to poor winter weather.²⁶² With the Pacific routes severed by Japanese military activity, this left the South Atlantic route as the only viable air line of communication between the United States and the Allies. Following General Eisenhower's orders the day following Pearl Harbor, two B-314 Pan American Clippers were loaded with .50 caliber machine gun ammunition and sent to Australia via the South Atlantic and Takoradi Route. Of the forty plus bombers the Air Force sent to the Pacific before March of 1942, thirty travelled via the South Atlantic - Africa route.²⁶³

Not all vitals materials travelled east, however. Essential commodities such as manganese, copper, diamonds, and cobalt flowed west to feed the expanding American war machine. For example, rubber from American Firestone plantations in Liberia was imported by B-314's from Fisherman's Lake to manufacture warplane tires and subsequently shipped by Pan American back east again to resupply grounded aircraft in the Far East theater.²⁶⁴ On Special Missions 6 and 7, 15 December 1941, Pan American B-314 NC-18602 transported ammunition, aircraft

²⁶⁰ Guedella, 192.

²⁶¹ Van Dusen letter.

²⁶² John C. Leslie manuscript: Pan American History. Page 10, folder #8, box #13, PAA Archives.

²⁶³ Civil Aeronautics Board docket No. 1171. Page 4, folder #5, box #330, PAA Archives.

²⁶⁴ Civil Aeronautics Board Docket No. 1171. 5.

tires, and spare parts to Karachi and Calcutta to resupply General Chennault's Flying Tigers, whose P-40s were grounded. Without the tires and tracer ammunition, the volunteer group could not have been fully effective in its operations against Japanese bombers. Consequently, in an action near Rangoon on Christmas Day, the Flying Tigers destroyed twenty-six Japanese fighter and bomber aircraft as a direct result of critical Pan American resupply operations.²⁶⁵

Liberia: A microcosm of the War Department and Pan American relationship

The Pan Americanization of Liberia and its role in the African transport effort provide key insights into the Pan American-War Department relationship. All three key actors in the relationship-- the Liberian government, the United States government and War Department, and Pan American airways-- attempted to improve their positions through a complex interplay of cooperation and interdependence strategies in this small, West African coastal nation. To understand this interaction, an explanation of Liberian international relations is required.

After achieving independence in the mid-1800's, Liberia struggled to sustain any level of international legitimacy. Plagued by corruption, inefficient governance, and allegations of supporting a modern day slave industry, Liberia faced ejection from the League of Nations in 1930. The British foreign office recommended stripping Liberia of her independent status and placing her under the control of a governing body within the League. The United States, on the other hand, dispatched a diplomatic team in 1934 to help smooth over the country's political and economic

²⁶⁵ History of Pan American World Airways, Civil Aeronautics Board docket 525. Page 15, folder #2, box #65, PAA Archives.

problems.²⁶⁶ By helping stabilize the government, the United States hoped to protect its rubber interests and recruit an ally to balance against British and French colonial expansion on the West and Ivory Coasts of Africa. Liberia resented the British for their diplomatic maneuvering, but rewarded the United States' goodwill with commerce, navigation, and aviation treaties in 1938.²⁶⁷

When France fell to Nazi Germany in 1940, Washington selected Liberia as a potential U.S.-friendly base that could serve allied purposes while keeping a healthy distance from the Vichy French at Dakar and serve as an intermediate landing and servicing point between the Gold Coast and Natal, Brazil. Liberia also happened to be neutral, which would protect the Roosevelt administration from accusations of Neutrality Act violations. Additionally, Liberia was the same distance from Natal as Dakar and offered closer proximity to Ascension Island, a strategically situated spit of land in the middle of the South Atlantic which the Army could use as an equipment staging area. To make matters more convenient for War Department planners, it turned out Juan Trippe had obtained the landing rights to Fisherman's Lake, Liberia, the year prior. This small, picturesque, relatively shallow ocean inlet situated in the foothills of a local American-Liberian settlement fifty five miles north of Monrovia was ideal for flying boat operations. Protected from rough seas, the lake provided safe harbor for Pan Am's B-314s transiting the African continent. Fisherman's Lake also offered the additional advantage of suitable terrain nearby for a land airfield. Aside from the geographic attributes of Liberia, Trippe recognized the strategic importance of the country. Liberia's neutrality made it safer from Axis attack. It was also much closer to Takoradi than Bathurst and provided an excellent intermediate staging area on the West African coast for Pan

²⁶⁶ Early Anderson, *Liberia, America's African Friend*, (Chapel Hill, 1952), 44.

²⁶⁷ Cordell Hull and Andrew Henry Thomas. *Berding, The Memoirs of Cordell Hull*, (New York: Macmillan, 1948), 1185-1186.

American aircraft experiencing emergencies or needing to make unplanned stops between Gambia and the Gold Coast. Liberia would also be an attractive addition to Trippe's post-war African route structure that wouldn't have to be turned back over to Great Britain or France following the cessation of hostilities. Moreover, Trippe could deal directly with the government of Liberia and not deal with the headaches of pleasing a protectorate or colonial "middle man."²⁶⁸

The War Department saw the chance to militarize Liberia without violating the Lend-Lease and Neutrality Act restrictions and protecting the neutral African country from Axis reprisals. The country could also serve as a pivot point, giving the War Department strategic flexibility to shift the major line of communication south to the Belgian Congo, along existing Pan American route structures, should Cairo or the Takoradi Route fall to the Axis.²⁶⁹ The Department would use Airport Development Program money to fund Pan American construction of a large air base at Monrovia in addition to its land-based and flying boat airports at Fisherman's Lake. This way, the War Department could deny direct or indirect involvement in wartime activities while using Pan American to negotiate for resources and access without getting involved in complicated diplomatic relationships. Similarly, Liberia could deny being involved in hostilities while receiving much needed infrastructure improvements to roads and new rural feeder routes. Finally, Pan American could add a lucrative Western terminus to its nascent commercial routes to the Belgian Congo and Kenya at government expense, all done under the guise of international commerce.²⁷⁰

Pan American even provided security and defense functions which the United States was either unwilling or unable to provide to the government of Liberia. Pan American construction employees were

²⁶⁸ Civil Aeronautics Board docket No. 1171, 20

²⁶⁹ Civil Aeronautics Board 1171, 21.

²⁷⁰ Author's conclusion.

carefully selected to man and operate machine guns and other automatic weapons in defense of the new air facilities and construction operations. With the U-boat threat to his supply ships steadily increasing, Trippe made a personal appeal to General Arnold to station a few PBY's at Fisherman's Lake, or a few British aircraft with crews in civilian clothes to base out of the Lake to conduct aerial reconnaissance missions. The requests went unfilled, and Pan American continued to operate in Liberia as a quasi-military organization.²⁷¹

Without waiting for Liberian legislative ratification to validate its contract, Pan American set to work on constructing its facilities at Fisherman's Lake. Facility construction at the lake was a tremendous undertaking. The first jetty for seaplanes on the lake was made of saplings strung together and lashed on to posts to form a primitive walkway. Construction crews dodged sharks and German subs while "surfing in" equipment from the ships off-shore, unable to penetrate the shallow, protective coastal shelf.²⁷² A self-sufficient, self-contained community had to be developed in what was up to that point scarcely inhabited Liberian jungle. Everything was brought in from the outside, from sewer systems and water treatment facilities to refrigerator units and housing accommodations. Hundreds of Liberians were employed clearing jungle and helping American construction crews. PAA constructed a radio station remotely controlling three separate transmitters and beacons, providing communications and navigational aid to hundreds of military aircraft through 1943.²⁷³ The Lake base itself may have slipped into obscurity if it weren't for one particular Pan American mission in late 1941. A B-314 arrived at the lake carrying piles of sandbags containing uranium ore mined from the Belgian

²⁷¹ Civil Aeronautics Board docket no. 525, 13.

²⁷² Gilmore report, 36.

²⁷³ Civil Aeronautics Board Docket 525, 4.

Congo.²⁷⁴ From these shipments, codenamed “Chicago Pile-1,” physicist and Nobel laureate Enrico Fermi and his team carried out the first successful self-sustaining nuclear reaction in December, 1942, under the University of Chicago’s Stagg football field stands.²⁷⁵ These successful experiments would eventually lead to the formation of the Manhattan Project and the development of nuclear weapons.²⁷⁶

By the summer of 1942, Liberia was reluctant to make her three new airports available to the British. However, Liberian President Barclay was well aware of the devastation German U-boats could inflict on Monrovia and other coastal towns, recalling what had happened after Liberia sided against the Reich in World War I. Eventually, the Royal Air Force was allowed to use Liberian facilities despite historic antagonism between the two countries. By this point, Liberia had what it wanted anyway, and the U-boat scourge had diminished considerably. The United States had invested so heavily in the African country, it became known as the “Million Dollar Program of Assistance to Liberia,” under which the United States built not only the access roads originally planned for supply of the airfields, but an additional network of highways, bridges, and communications facilities. All of these projects were donated to Liberia after the war. Pan American even obtained Grumman Amphibian aircraft to operate between the airports and extend into Liberia’s back country.²⁷⁷

The U.S. government didn’t view Liberia as simply a charity case; it met its objectives with the partnership as well. In November 1941, President Roosevelt told the media that the Nazis had just made an effort to establish an airline “in a little place called Liberia...awfully close to

²⁷⁴ William R Stanley, *Air Transport in Liberia*, “Journal of Transport History”, University of South Carolina, 195.

²⁷⁵ Stanley, 195.

²⁷⁶ Leslie R. Groves, *Now It Can Be Told: The Story of the Manhattan Project*, (New York, 1962), 37, 179.

²⁷⁷ Gilmore Report, 73.

South America.”²⁷⁸ He told reporters that the United States would not break off diplomatic relations with Germany but would simply “keep on the defensive.”²⁷⁹ The truth was, Pan American’s presence in Liberia with the full backing of the United States had so reduced Germany’s options for military installations there, the threat had no chance to materialize.

Evaluation of PAA-Africa

From October 1941 to October 1942, PAA-A made one general and five specific operational contributions. The general contribution involved the development and expansion of existing route facilities into a well organized air transport operation. The five specific contributions were:

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1. Construction of modern camp facilities at Accra and elsewhere.
2. Installation of an adequate system of route communications including a network of thirteen ground stations.
3. Demonstrated from a health standpoint the practicability of large-scale air transport operations in Africa.
4. Development of Liberian services, including airport construction.
5. At militarization, the furnishing of a nucleus of trained personnel to assist the U.S. Army Air Force in continuing route operations.

When PAA-A began operations in October 1941, the trans-African route from the Gold Coast to Cairo was already established by British aircraft. PAA increased the volume of route transport operations tremendously, and provided the facilities required for extended operations. Operations were not of any appreciable volume until the early spring of 1942. For the year of operations, PAA-Africa completed

²⁷⁸ Gilmore report, 15.

²⁷⁹ Gilmore report, 16.

²⁸⁰ History: World War II, Africa Personnel. Page 36, folder #4, box #258, PAA Archives.

about five thousand flights along six million miles of trans-continental routing. Approximately sixty percent of all flights were revenue producing, including scheduled and non-scheduled flights, charter and ferry operations. Training flights averaged about fifty percent of all flights, and the remaining ten percent included maintenance test flights, operational route surveys and emergency flights. When the ATC of Army Air Forces militarized PAA-A in the fall of 1942, the airline was a well-organized and smoothly functioning unit, with route operations extending from Liberia to Cairo, Tehran, and Karachi.²⁸¹

At Accra, a modern airlines base had been constructed, providing full housing, messing, maintenance, communications, recreational, and medical needs. Route stations such as Benson and Roberts in Liberia, Lagos, Kano, and Maiduguri in Nigeria, Khartoum in the Sudan, and Cairo, Egypt, all became important links in PAA-A and the ATC route operations. At each one of these stations, PAA-A made important improvements to existing facilities. With the help of various civil authorities, personnel accommodations were constructed and made available for subsequent use by the Army. For example, at Geneina, in the Sudan, three brick and concrete barracks buildings and one mess hall were constructed by PAA-A with the assistance of the public works department of the Sudan. When PAA-A turned over operations at Geneina to the Army, these buildings were ready for ATC personnel occupancy and use.²⁸²

When PAA-A began operations in October, 1941, route communications and navigation aids were inadequate, and PAA installed a network of 73 ground stations to handle PAA traffic. The first radio station installed by PAA-A was opened on 11 November, 1941, at Accra, and this station was followed by installations at Khartoum, Anglo-Egyptian Sudan; Maidugari, Nigeria; Cairo, Egypt, Kano, Nigeria; El

²⁸¹ Gilmore Report, 73.

²⁸² History: World War II, Africa Personnel, 37.

Fasher, Anglo-Egyptian Sudan; Freetown, Sierra Leone; Lagos, Nigeria; Roberts Field, Liberia; Fort Lamy, French Equatorial Africa; El Geneina, Anglo Egyptian, Sudan; Selala, and Gura, Eritrea. With the exception of Freetown, all of these stations were turned over to the Army at the end of 1943.²⁸³ Altogether, during its sixteen months of existence, PAA-Africa's aircraft covered over four million miles, flying almost one million miles in September 1942 alone.²⁸⁴ Additionally, U.S. Army Air Forces, British Airways Corporation, and the RAF eventually joined Pan American to conduct operations along the route and use PAA-Africa's facilities. Transforming the old, primitive Takoradi repair and staging posts so quickly into efficient, modern airfields while organizing and utilizing an operating staff to keep the heavy traffic flowing under wartime conditions was no small task. This undertaking tested the abilities of both Pan American and the War Department to interoperate and innovate under arduous combat condition while making every effort to remain at least outwardly neutral. Juan Trippe and his private corporation were probably the only ones who could have so quickly created an efficient air supply route from the tatters of the antiquated Takoradi Route. Voit Gilmore, Pan American Airways-Africa's manager during the route transformation puts it well: "To [these] planners and doers victory came as no surprise; it came on schedule. They had undertaken to telescope time and space, beat the jungle and desert, heat and disease...when they sent final reports to the administrator of the contract they wrote, 'project completed,' not 'miracle achieved.'"²⁸⁵

²⁸³ History: World War II, Africa Personnel, 40.

²⁸⁴ Cleveland, 180.

²⁸⁵ Gilmore Report, 9.

Conclusion

Ten percent of aviation is in the air, and 90 percent is on the ground.

-Clement Keys, founder of Trans World Airlines

The system of bases, routes, services, facilities, airplanes and personnel that Juan Trippe assembled spanned three continents and advanced the national objectives of his government and the organizational objectives of his business. He possessed a unique ability to anticipate events and engineer the position of Pan American to serve as the most logical choice among non-traditional instruments of national power. He couldn't have set the "chosen instrument" in motion, however, unless someone was setting the overall conditions for his success. President Roosevelt acted as a political champion and enabler for Trippe's transformation of the chosen corporate instrument into a paramilitary entity. Roosevelt's command economic decisions cleared the way for PAA to develop airfields across South America and Africa for the defense of the Western Hemisphere where the market for additional fields and planes either didn't exist or were already saturated. A command economy is an economic system in which activity is controlled by a central authority. Contrasted with a market economy, in which innovation and trade occur based on supply and demand for goods and services, a command economy determines commercial productivity and development based on national objectives, not free market forces. It is the direction of authority, not supply and demand, which determines the output of a command economy. Juan Trippe was not only an entrepreneurial capitalist but a command economist, having to sometimes ignore free market trends to create opportunities for the advancement of both Pan American and the War Department. Trippe's

command economic imperatives, however, enjoyed a precedent of at least a century and a half.

In his book *The Pursuit of Power*, University of Chicago professor and historian William McNeill portrays Jean Baptiste Gribeauval, one of Napoleon Bonaparte's artillery captains, as an ideal command economist. By rationalizing and mathematizing warfare in general and standardizing the production and use of field artillery in particular, Gribeauval filled a strategic void where eighteenth century market forces were otherwise disinterested. Until that time, artillery pieces were as distinct, and therefore dissimilar, as the foundries that produced them. Craftsmen passed family foundries down to their sons and apprentices along with their specific techniques and styles that made their brand of artillery unique. Pre-Gribeauval artillery pieces may have been "the last argument of kings," but where the guns were cast largely determined the strength of that argument. Gribeauval proposed crafting pieces by spinning a single block of molten metal around a fixed and standardized bore versus pouring molten iron or bronze around a clay cylinder. The emergent properties of Gribeauval's artillery designs, namely lighter weight and increased range without sacrificing explosive power, had a ripple effect through Europe and the rest of the globe.²⁸⁶ Standardizing the production and use of artillery allowed Napoleon's Corps to interchange parts, conduct quick field repairs, and achieve predictable and repeatable battlefield effects with devastating accuracy. Gribeauval's artillery reform and systematic research and development teams were a product of both his imagination and education. His exposure to Austrian and Prussian "foreign practice" allowed him to experience the "range of the possible" and determine what was needed in France despite prevailing international, institutional, and domestic resistance.²⁸⁷

²⁸⁶ William Hardy McNeill, *The Pursuit of Power: Technology, Armed Force, and Society since A.D. 1000*, (Chicago: University of Chicago, 1982), 171.

²⁸⁷ McNeill, 174.

Like Gribeauval, Juan Trippe had to convince a recalcitrant bureaucracy of the advantages of commercial air transport on the battlefield and the “range of the possible.” And like Gribeauval, Trippe relied on imagination to envision how to shape current events and determine what people were talking and thinking about. Trippe’s iconic globe symbolized his vision for Pan American as a global entity. The scale of the globe also represented Trippe’s ambition to “shrink the world,” giving passengers the feeling that luxurious, far-off destinations were within reach, and policy makers the confidence that power projection was a matter of inches and hours, not miles and days. Trippe and Gribeauval’s championing of a critical innovation both illustrate the nexus between technology, external forces and internal structures where individuals achieve strategic advantage. For Trippe, the Takoradi route prior to Pan American’s capital infusion was operated by a smattering of Imperial Airways, contract air carriers, and Royal Air Force assets relying on organization specific planes, training, and flight rules. This disaggregate effort effectively began starving Air Marshal Tedder of the critical air support he needed to face Rommel’s numerically superior and combat-proven Afrika Korps. These dissociative forces would have to be harnessed, redirected, and exploited by a single strategist acting as a heterogeneous engineer. For Gribeauval, the national imperative of systematically improving military might outweighed the need to follow market forces in a budding democracy. Both men used the imperatives and the interests of the State to their advantage. They exploited the needs of the strategic environment and harnessed state power to effect technological and economic change and manage context to their advantage.

Juan Trippe as a Heterogeneous Engineer

Innovation often relies upon individuals that possess the vision to understand the full potential of technological innovation. In *Medieval*

Technology and Social Change, medieval historian Lynn White contends that “the acceptance or rejection of an invention...depends quite as much on the condition of a society, and upon the imagination of its leaders, as upon the technological item itself.”²⁸⁸ When individuals fail to understand the implications of innovation, those innovations fail. He continues, “Anglo Saxons used the stirrup, but did not understand it; and for this they paid a fearful price.”²⁸⁹ Similarly, Hitler and Goering used the Condor Syndicate to gather limited intelligence from the New World and maintain a viable Luftwaffe reserve, but failed to understand the potential of commercial airpower to advance their strategic position in the western hemisphere. Nor did they understand the positional advantage of Vichy French territories in the Caribbean or French Dakar. For this lack of understanding, Hitler paid a steep price in valuable time and geostrategic advantage. Trippe and Roosevelt understood this potential, and used it to great commercial and strategic effect.

In his article “Technology and Heterogeneous Engineering: The Case of Portuguese Expansion,” historian John Law argues that individuals seeking organizational innovation must be adept at organizing and combining disparate ideas and situations to achieve disproportionate results. He contends there are too many emergent, heterogeneous properties and complex contingencies for innovation to happen spontaneously. There must be an organizer, or heterogeneous engineer, to manage contexts for advantage and catalyze the innovation process.²⁹⁰ President Roosevelt, though wary of creating a monopolistic juggernaut in Pan Am, knew Trippe would serve the nation well as a capable, entrepreneurial heterogeneous engineer. Juan Trippe faced

²⁸⁸ Lynn Townsend White, *Medieval Technology and Social Change*, (Oxford: Clarendon, 1962), 28.

²⁸⁹ White, 28.

²⁹⁰ Wiebe E Bijker, Hughes Thomas Parke, and T. J. Pinch, *The Social Construction of Technological Systems: New Directions in the Sociology and History of Technology*, (Cambridge, MA: MIT, 1987). The concept of heterogeneous engineer appears throughout the book, but most notably in the works of John Law.

what must have seemed like insurmountable environmental, political, economic, and social obstacles. Dissociative forces such as hostile domestic politicians, obstructionist British officials, technological reverse salients, African environmental conditions, and an active and non-cooperate enemy were just a small fraction of the threats facing Trippe's global vision.²⁹¹ He succeeded in large part because he was able to anticipate, or at least account for and manage, these "dissociative forces" to his advantage. Dr. Stephen Rosen, Harvard professor and military innovation historian, proposes that innovation is advanced by bureaucracies and championed by those individuals whom the institution values and protects. Trippe provided his own protection by maintaining his position as Chief Executive officer of the most influential airline in the world. Had he accepted General Arnold's offer to serve the nation as a subordinate air transport commander, his freedom of maneuver to establish and capitalize on relationships outside the formal chain of command could have been seriously curtailed, to the detriment of both Latin American and African programs as well as the Allied war effort. The problem of military innovation, Rosen goes on to explain, is necessarily a problem of bureaucratic innovation. He contends that bureaucracies were not designed to innovate, that they are designed to optimize and operationalize external strategic guidance. But they do innovate, and Rosen explains that this is because of forward thinking innovators inside the organization. Though not inside the War or State departments, Trippe was able to leverage his relationships such that he benefitted from Rosen's "inside man" theory while retaining the benefits and flexibility of an outside perspective. Enabled by his connections to high officials, Trippe was able to short-circuit the traditional bureaucracy

²⁹¹ Dissociative forces are disaggregating elements that, deliberately or otherwise, conspire to break apart unified materials, organizations, or efforts. Reverse salients are technological gaps in knowledge that prevent or threaten to prevent advances in technological innovation. Both concepts are found throughout *The Social Construction of Technological Systems*.

and create a new, innovative organization unhampered by government red tape and institutional friction

Juan Trippe as a Strategist

Without question, Trippe desired to succeed in the many important, confidential projects he carried out on behalf of his government, but it was also imperative that he think of the commercial viability and future of his airline. It was too much to expect a multi-million dollar corporation to forego opportunities for expansion for the sake of nationalism. Even the most successful entrepreneur turned command economist has limitations. To this end, Trippe had long been accustomed to acting unilaterally and probably saw no reason to change during the ADP and PAA-Africa projects. He tried to use both programs as a comprehensive vehicle to attain the final links in PAA's encirclement of the globe.

Of all the strategic benefits the War Department obtained from Trippe's Latin American and African projects, the most valuable to the allies was timing and position. Starting with the destroyers-for-bases agreement and the acquisition of basing rights in Latin America as early as 1939, a full two years before the United States entered the war, Juan Trippe's efforts provided air lines of communication capable of sustaining Great Britain's armies in Egypt. As Alfred Thayer Mahan concluded over one hundred years ago, "communications dominate war," and the British Army would need a sustained supply and logistics effort over communications lines that hadn't seen significant use since the 1920s.²⁹² His efforts also anticipated and compensated for the increased demand for military airlift in the face of reduced capacity following the Japanese attack on Pearl Harbor. Had Trippe not taken the necessary

²⁹² A.T. Mahan and John B. Hattendorf, *Mahan on Naval Strategy: Selections from the Writings of Rear Admiral Alfred Thayer Mahan*, (Annapolis, MD: Naval Institute, 1991), 144.

steps to establish a strategic base of operations in Latin America from which he could intubate the withered artery of the Takoradi route before 7 December 1941, Britain's ability to hold back Rommel's Afrika Korps would have been critically degraded. Had Rommel gained just a few hundred more miles of success in Egypt and consolidated control throughout the continent, Germany would have been in a much better position to advance on the Middle East. With a protected southern flank, forces throughout the Caucasus, and control of the Mediterranean, Hitler could deprive the Allies of Middle Eastern oil, close the Persian Gulf and Basra to critical Russian war materials, and shut the southern gate to "Fortress Europe."²⁹³ The loss of Africa would also have impacted operations in the Pacific and China since weather and enemy activity were impinging on northern Atlantic and trans-Pacific air routes from December 1941 to the following April.²⁹⁴

Roosevelt would probably have preferred to use the Air Force to reinforce the Takoradi route, but any attempt to use military forces from a neutral country would have jeopardized not only aid to the Middle East, but extension of the Selective Service Act of 1941. As it stood, the Act was the only means by which the president could use military forces in defense of the western hemisphere. He no doubt stretched the spirit if not the letter of the law to its limits by declaring the Azores and Liberia part of the "Western Hemisphere." Sending troops overtly to resupply the British would have cost him not only his chances for re-election, but might have led to the demise of the act and attenuated the ability to project military power beyond the borders of the United States.

Juan Trippe and Pan American endeavored to achieve strategic advantage to accomplish both national war aims and increase market share in a highly sensitive domestic political environment. He accomplished this by creating an interdependent relationship between

²⁹³ Author's term.

²⁹⁴ Bender, 359.

the United States Government and Pan American by which each entity could benefit from the strengths of the other. Pan American provided the government with plausible deniability, an expert workforce, technological infrastructure, and international relationships while the government provided Pan American with significant funding as well as protection from route encroachment. Through this synergistic relationship, the United States and Pan American set the conditions for defense of the western hemisphere and victory in North Africa. It remains a model for effective business-government cooperation in the pursuit of successful grand strategy. In the end, though, relationships between organizations depend upon human relations. It takes individuals like Juan Trippe to understand contexts and use relational intelligence to shape conditions and influence others for incremental advantage. Seemingly aloof and casually affable, Trippe was really building trust through personal connections. He shaped the future for the benefit of his country and Pan American. With this trust, Trippe could amass power and influence others to affect the course of events that would ultimately support his view of the world. The iconic picture of Trippe looking at a globe of the earth was not that of a man admiring all he had accomplished, but provided a glimpse into the ambition of a man who sought to shape the world the way he envisioned it.

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